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(54) Gaming machine

(57) A gaming machine (60) has a symbol display arrangement (63L, 63C, 63R) for variably displaying a plurality of symbols that is arranged to display a stop state when variation of the displayed symbols is stopped and to give a profit to a player when the stop state corresponds to a specific stop state; a predictive display arrangement (64) for performing predictive display whether the specific stop state is or is not be displayed when variation of the displayed symbols is stopped; a start device (70) for starting the variation of the displayed symbols in response to manipulation by a player; a stop device (71L, 71C, 71R) for stopping the variation of the displayed symbols in response to manipulation by a player, and a controller (201) for determining whether or not it is permitted to display of the specific stop state and for determining a predictive display mode based on the result of the determination, the controller (201) being arranged to control the predictive display arrangement (64) such that a likelihood of appearance of the specific stop state is changeable in conjunction with a change in the game resulting from the passage of time. Since a likelihood or a reliability of an appearance of the specific stop state is changeable with passage of time, the player can adjust his or her stop manipulation while confirming changes of the predictive display or expecting appearance of a known predictive display at the time of the player's manipulation. In addition, since the predictive display is performed by using symbols, the player can recognize information of the prediction precisely and an effective demonstration can variously be realized, thereby the fun of the entire game is enhanced.

FIG. 2
FACE PROGNOSTIC DETERMINATION TABLE
("BB HIT + CLAPPING REACH")

PROGNOSTIC GROUP	RANDOM NUMBER FOR PROGNOSTIC DISPLAY DETERMINATION	
	0~40	41~80
A GROUP	FACE SYMBOL 1	FACE SYMBOL 2
B GROUP	81~96	97~110
	FACE SYMBOL 3	FACE SYMBOL 4
C GROUP		
	111~115	116~119
D GROUP	FACE SYMBOL 5	FACE SYMBOL 6
	120~129	130~139
	FACE SYMBOL 7	FACE SYMBOL 8

Description**Background of the Invention****FIELD OF THE INVENTION**

[0001] The present invention relates to a gaming machine that is provided with a symbol display arrangement for variably displaying a plurality of symbols necessary for a game and a controller such as a microcomputer for controlling the variable display of the symbol display arrangement. More specifically, the invention relates to a slot machine having buttons for a player to manipulate for stopping variation action of the variable display in desired timing (hereinafter referred to as "Pachi-Slo" machine).

DESCRIPTION OF THE RELATED ART

[0002] Two types of the Pachi-Slo machines are commercially used. One type of the Pachi-Slo machine has mechanical reels for variably displaying the symbols (special symbols) relevant direct to profit of a player, and if desired, also has an electrical display device as secondary display for performing a demonstration display such as a prognostic display or a "reach action". Another type of the Pachi-Slo machine has an electrical display device for variably displaying the special symbols as well as for performing the demonstration display, which is called a video slot machine.

[0003] Such electrical displays permit various indications or demonstrations that enhance the player's interest in the game. For example, such indications may include: a change in a background color to indicate in an exciting way that a specified combination of the special symbols corresponds to a special win, e.g., "big hit" or "Big Bonus hit" (hereinafter termed "BB hit"); the appearance of a new character other than the special symbols; an indication of a pattern with unusual motion to indicate that the special win can be obtained if one more special symbol is arranged in the display (i.e., "reach state"), thereby indicating to the player that a special win may soon appear; etc.

[0004] A particularly useful demonstration for elevating the player's interest is a pattern or symbol variation display that is termed a "reach action" in the "reach state" mentioned above. When the reach action begins, the player's attention is drawn to the display with an expectation of the appearance of the special win. The reach action includes, for example, a change in the speed of the displayed pattern or symbol variation, a change of the duration of the symbol variation, or the like. Sometimes, the special win will appear 100% of the time after a special reach action. Thus, such a reach action is predictive of the appearance of the special win.

[0005] The reach action on a display of a conventional Pachi-Slo machine, however, may disadvantageously be but a simple indication, such as a change of speed

or duration of a particular pattern or symbol variation. Since the special win might not always appear, the conventional simple indication may betray the player's expectation and thereby have the contrary effect of reducing the player's interest in the game.

[0006] In addition, as mentioned above, it is known that the reach action is carried out by indicating a symbol or a character other than the special symbols. The conventional reach action is but a simple symbol indication, and does not provide any information as to the possibility of the appearance of the special win. The player therefore easily tires of the conventional simple reach action, and the game becomes monotonous.

[0007] Some conventional Pachi-Slo machines are arranged to generate a plurality kinds of sounds when the game has started by player's operation. Among the plurality kinds of sounds, at least one kind of the sound is predetermined to frequently be generated in the general game state where a special win such as "BB hit" has not been elected by a lottery of the internal system and at least one kind of the sound other than the above is predetermined to frequently be generated when the special rank of win is elected by a lottery of the internal system. Thus, the Pachi-Slo machines can predict the appearance of the special win by the generated sounds. Further some conventional Pachi-Slo machines are arranged to switch on back lamps disposed behind the reels in a predetermined way or sequence or flashing them in a predetermined pattern. The Pachi-Slo machines can predict the appearance of the special win by the operation of back lamps at a constant probability when the special win is elected by the lottery of the internal system. Further some conventional Pachi-Slo machines are arranged to predict the special win by the generation of the sounds or the operation of the back lamps, or a combination thereof.

[0008] However, such a simple way of the generation of sounds or the operation of back lamps cannot give a detailed prediction.

[0009] Reliable information relative to the appearance of a special win, "big hit" or a "BB hit" will not give the player excessive expectation of a "big hit" or a "BB hit" and the player will not feel betrayed when a "loss" is definitely determined. If the information indicative of the probability of a "big hit" is not only simple information, but also an interesting and effective demonstration with variety, it would enhance the player's interest in the entire game.

50 Summary of the Invention

[0010] An object of the present invention is to provide a Pachi-Slo machine which can display a likelihood or a reliability of appearance of a special win such as "big hit" or "BB hit", etc. and an interesting and effective demonstration with variety.

[0011] A gaming machine according to the present invention has:

a symbol display arrangement for variably displaying a plurality of symbols that is arranged to display a stop state when variation of the displayed symbols is stopped and to give a profit to a player when the stop state corresponds to a specific stop state; a predictive display arrangement for performing predictive display whether or not the specific stop state is displayed when the variation of the displayed symbols is stopped; a start device for starting the variation of the displayed symbols in response to manipulation by a player; a stop device for stopping the variation of the displayed symbols in response to manipulation by a player; and a controller for determining whether or not it is permitted to display the specific stop state and for determining a predictive display mode based on the result of the determination, the controller being arranged to control the predictive display arrangement such that a likelihood of appearance of the specific stop state is changeable in conjunction with a change in the game resulting from passage of time.

[0012] In the Pachi-Slo machine according to the invention, as a likelihood or a reliability of an appearance of a specific stop state is changed with passage of time, the player can adjust his or her stop manipulation while confirming changes of the predictive display or expecting appearance of a predictive display of "XXX" at the time of the player's manipulation. In addition, since the predictive display is performed by using symbols, the player can recognize information of the prediction precisely and an effective demonstration can variously be realized, thereby the fun of the game is enhanced.

[0013] According to an embodiment of the present invention, there is provided a gaming machine in which the likelihood of an appearance of the specific stop state is changeable by displaying a plurality of predictive display symbols sequentially with passage of time. Thus, the player easily can recognize the time-dependent change of the reliability.

[0014] According to another embodiment of the present invention, there is provided a gaming machine in which the plurality of the predictive display symbols are displayed successively. Accordingly, smaller changes in the likelihood of predicting the appearance of the specific stop state can be indicated to the player by the successively displayed symbols.

[0015] According to another embodiment of the present invention, the plurality of the predictive display symbols depicts a story line. The change of the predictive display symbols that is accompanied with the change of the likelihood is arranged to depict a story line. Accordingly, the player's interest in the predictive display is enhanced, consequently enhancing the player's interest in the entire game.

[0016] According to the other embodiment of the present invention, there is provided a gaming machine in which the controller is provided with a predictive display memory for storing a plurality of predictive display symbol groups, each having the plurality of predictive display symbols, by classifying them in accordance with the likelihood of appearance of the specific stop state. The predictive display can be performed in various display modes, which can correspond to the same degree of probability, so that the player will not easily be tired of the symbol variation from start to stop. Moreover, the player's interest in the game is enhanced by enabling the player to estimate the quantum of the likelihood that is associated with the displayed predictive display.

[0017] In accordance with the other embodiment of the present invention, there is provided a gaming machine in which the likelihood of appearance of the specific stop state is changeable in response to the stop timing of the variation of the symbols being displayed by the symbol display arrangement. The likelihood or reliability of appearance of the specific stop state is changeable in response to the stop timing of the variation action of the symbols being displayed by the symbol display arrangement. Accordingly, a sense of relationship between the stop display and the predictive display can be imparted to a player. The player easily recognizes the predictive display by paying attention to the stop display of the variation action.

[0018] The player who is aware of relation between the stop timing of the variation of the displayed symbols and the timing of the change of the likelihood, will pay attention to what is displayed in each timing. Accordingly, an effect is available to increase the player's expectation of the special win in response to the stop timing of the variations of displayed symbols.

[0019] In accordance with the other embodiment of the present invention, there is provided a gaming machine in which the predictive display is performed one or more times until variation of any one of the variably displayed symbols is stopped.

[0020] In the case where the predictive display is to predict appearance of the specific stop state, the procedure of the game is arranged in the order of "start of all symbol variations" → "predictive display" → "stop of one of the symbol variations". The player may have an expectation as to whether the predictive display will lead to a special win.

[0021] In particular, in the case where three variable symbols are displayed and the variations of the three variable symbols are arranged to stop at different times, the second stop symbol is used to determine whether or not the "reach" state is established, and therefore the player is concerned about the second stop symbol. In the present invention, the likelihood or reliability indicated by the predictive display may sometimes include two kinds: first, the probability of development into a special win such as "big hit", "BB hit" or etc. depending upon whether or not the specific stop state will appear; and

second, the probability of development into a "reach" state.

[0022] In accordance with the other embodiment of the present invention, there is provided a gaming machine in which the predictive display is performed one or more times during a period from when variation of any one of the variably displayed symbols is stopped to when variation of further one of the variably displayed symbols is stopped subsequently.

[0023] In the case where the predictive display is to predict appearance of a "reach" state, if the procedure of the game is arranged in the order of "start of all symbol variations" → "stop of a first one of the symbol variations" → "predictive display" → "stop of a second one of the symbol variations", a player can understand a process in which the player is advised of whether or not a "reach" state is actually established after the player doubted whether the predictive display would be connected to the "reach" state, thereby increasing the player's interest in finding a relationship between the predictive display and the development into the "reach" state. In other words, what kind of predictive display needs to be executed for development of the game into the "reach" state. In addition, if a player recognizes the predictive display that tends to develop into the "reach state", then the player pays attention to the subsequent course of the game with an expectation that the possibility of development into a "reach state" will be high because the particular predictive display was executed. This expectation is established to a predetermined certainty, and hence the player's interest in the game is enhanced.

[0024] In accordance with the other embodiment, there is provided a gaming machine in which the predictive display is performed one or more times during a period from when variations of any two of the variably displayed symbols are stopped to when variation of further one of the variably displayed symbol is stopped subsequently.

[0025] In a case where three variable symbols are arranged to be displayed and two symbols among them have already stopped to establish a "reach" state, the third (last) stop symbol fills the role of determining whether or not the specific stop state is established. By executing a predictive display to indicate the likelihood of development into a special win during a "reach" state, the player's interest is increased by finding a relation between the predictive display and the development into the "reach" state. When a known predictive display is performed, the player will pay attention to the game with an expectation that is supported by a predetermined certainty in the appearance of the specific stop state.

[0026] In accordance with the other embodiment, there is provided a gaming machine in which the predictive display is performed one or more times until the variation of any one of the variably displayed symbols is stopped and then one or more times until variation of further one of the variably displayed symbols is stopped

subsequently.

[0027] In accordance with a the other embodiment, there is provided a gaming machine in which the predictive display is arranged to be performed one or more times until the variation of any one of the variably displayed symbols is stopped and then one or more times during a period from when variation of further one of the variably displayed symbols is stopped to when variation of further one of the variably displayed symbols is stopped subsequently.

[0028] In accordance with the other embodiment, there is provided a gaming machine in which the predictive display is performed one or more times during a period from when variation of any one of the symbols is stopped to when variation of further one of the variably displayed symbols is stopped, and then one or more times until variation of further one of the variably displayed symbols is stopped subsequently.

[0029] In accordance with the other embodiment, there is provided a gaming machine in which the predictive display is performed one or more times until the variation action of any one of the variably displayed symbols is stopped, then further one or more times until variation of further one of the variably displayed symbols is stopped, and then further one or more times until variation of further one of the variably displayed symbols is stopped subsequently.

[0030] One of gaming machines according to the present invention has a display screen for performing both of the variable display of symbols and the predictive display. A player can have a sense of unity enhanced in the variably displayed symbols and the predictive display, and an increased interest of the game. Further, a player can watch the display screen at a glance with little movement and can easily understand a change of the game state.

[0031] Further one of gaming machine according to the present invention has:

40 a plurality of mechanical rotatable reels each provided with a plurality of symbols that are arranged to display a stop state when their rotations are stopped and to give a profit to a player when the stop state corresponds to a specific stop state; a random number generator for generating a random number; a start device for extracting the random number and starting the rotations of the reels in response to a manipulation by a player; stop devices for stopping respective rotations of the reels in response to each manipulation by the player; an electrical display arrangement for performing predictive display whether or not the specific stop state is displayed when the rotations of the reels are stopped; and a controller for determining whether or not it is permitted to display the specific stop state and for de-

terminating a predictive display mode based on the result of said determination, the controller being arranged to control the predictive display arrangement such that a likelihood of appearance of the specific stop state is changeable in conjunction with a change in the game resulting from the passage of time.

[0032] In accordance with this type of "Pachi-Slo" machine, since the predictive display is performed by the electrical display arrangement and the variable display of the symbols is performed by the mechanical reels, a player will execute stop manipulation of the reels, e.g., push button operation while watching the symbols on the reels, thereby a bad influence for eyes due to continuous gaze of the electrical display screen for a long time can be restrained. Further, the electrical display arrangement can give various visual demonstrations using predictive symbols to enhance the interest of the game.

Brief Description of the Drawing

[0033] The foregoing and other objects, features, and advantages of the invention will become more apparent from the following detailed description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a representation of a specific illustrative embodiment of the present invention in the form of a Pachi-Slo machine;

Fig. 2 is a table for determination of "prognostic facial expression":

Fig. 3 is a block diagram of circuit of the Pachi-Slo machine;

Fig. 4 is a table of results of winning for combinations of winning symbols when three reels are stopped;

Fig. 5 is a flowchart showing a procedure for determining prognostic to be displayed by the liquid crystal display;

Fig. 6 is a continuation of the flowchart of Fig. 5;

Fig. 7 is a flowchart showing procedures for random number extraction;

Fig. 8 is a flowchart showing a procedure for predictive display selection;

Fig. 9 is a flowchart showing a procedure for predictive display control;

Fig. 10 is a continuation of the flowchart of Fig. 9;

Fig. 11 is a table showing ranges of random numbers to be extracted;

Fig. 12 is a table for the determination of "winning rank" correlated to random numbers;

Fig. 13 is a table for the determination of "reach permission" correlated to random numbers;

Fig. 14 is a table for the determination of "reach demonstration for BB hit" correlated to random numbers;

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Fig. 15 is a table for the determination of "reach demonstration for no BB hit" correlated to random number ranges;

Fig. 16 shows a table for the determination of "prognostic display" correlated to random number ranges;

Fig. 17 is a representation that illustrates a display of "clapping reach";

Fig. 18 is a representation that illustrates a display of "harite reach";

Fig. 19 is a representation that illustrates a display of "prognostic facial expression 1";

Fig. 20 is a representation that illustrates a display of "prognostic facial expression 2";

Fig. 21 is a graphical representation of a timing diagram of an example of display duration for variation of symbols, prognostic displays, and "reach" demonstration;

Fig. 22 is a graphical representation of a timing diagram of another example of display duration for variation of symbols, prognostic displays, and "reach" demonstration;

Fig. 23 is a graphical representation of a timing diagram of first example of stop timing of the variation of symbols and display timing of prognostic display;

Fig. 24 is a graphical representation of a timing diagram of second example of stop timing of the variation of symbols and display timing of prognostic display;

Fig. 25 is a graphical representation of a timing diagram of third example of stop timing of the variation of symbols and display timing of prognostic display;

Fig. 26 is a graphical representation of a timing diagram of fourth example of stop timing of the variation of symbols and display timing of prognostic display;

Fig. 27 is a graphical representation of a timing diagram of fifth example of stop timing of the variation of symbols and display timing of prognostic display;

Fig. 28 is a graphical representation of a timing diagram of sixth example of stop timing of the variation of symbols and display timing for prognostic display;

Fig. 29 is a graphical representation of a timing diagram of seventh example of stop timing of the variation of symbols and display timing for prognostic display;

Fig. 30 is a graphical representation of a timing diagram of third example of display duration for variation of symbols, prognostic displays, and "reach" demonstrations;

Fig. 31 is a representation that illustrates a display of "dragonfly reach";

Fig. 32 is a representation that illustrates a display of "fighting reach";

Fig. 33 is a representation that illustrates a display of "bear reach";

Fig. 34 is a representation that illustrates a display of "right leg lifting reach";
 Fig. 35 is a representation that illustrates a display of "left leg lifting reach";
 Fig. 36 is a representation that illustrates a display of "small degree left leg lifting reach";
 Fig. 37 is "table B for the prognostic display determination", correlated to random number ranges;
 Fig. 38 is a table showing an appearance probability for the "BB hit" when the determination results in the "BB hit";
 Fig. 39 is a table showing an appearance probability for the "no BB hit" when the determination results in "no BB hit";
 Fig. 40 is a tabular representation that illustrates the probability of development into "BB hit";
 Fig. 41 is a tabular representation that illustrates the probability of development into "reach";
 Fig. 42 is a flowchart of a further example for a determination operation procedure for display on the liquid crystal display device of the Pachi-Slo machine of the present invention;
 Fig. 43 is a continuation of the flowchart of Fig. 42;
 Fig. 44 is a tabular representation for the determination of a prognostic facial expression combination to be referred to in the event of the "BB hit + clapping reach";
 Fig. 45 is a tabular representation for the determination of a prognostic facial expression combination to be referred to in the event of the "BB hit + harite reach";
 Fig. 46 is a tabular representation for the determination of a prognostic facial expression combination to be referred to in the event of the "BB hit + all rotation reach";
 Fig. 47 is a tabular representation for the determination of a prognostic facial expression combination to be referred to in the event of the "no BB hit + clapping reach";
 Fig. 48 is a tabular representation for the determination of a prognostic facial expression combination to be referred to in the event of the "no BB hit + harite reach";
 Fig. 49 is a tabular representation for the determination of a prognostic facial expression combination to be referred to in the event of the "no BB hit + no reach";
 Fig. 50 is a tabular representation for the determination of facial expression symbol;
 Fig. 51 is a representation of another embodiment of the present invention in the form of a video Pachi-Slo machine;
 Fig. 52 is a representation of a front view of one screen display;
 Fig. 53 is a representation that illustrates a display of "clapping reach";
 Fig. 54 is a representation that illustrates a display of "harite reach";
 Fig. 55 is a representation that illustrates a display of "prognostic facial expression 1";
 Fig. 56 is a representation that illustrates a display of "prognostic facial expression 2";
 Fig. 57 is a representation that illustrates a display of "dragonfly reach";
 Fig. 58 is a representation that illustrates a display of "fighting reach";
 Fig. 59 is a representation that illustrates a display of "bear reach";
 Fig. 60 is a representation that illustrates a display of "right leg lifting reach";
 Fig. 61 is a representation that illustrates a display of "left leg lifting reach";
 Fig. 62 is a representation that illustrates a display of "small degree left leg lifting reach";
 Fig. 63 is a flowchart showing an operation procedure of symbol variation display in the liquid crystal display; and
 Fig. 64 is a continuation of the flowchart of Fig. 63.

Detailed Explanation of the Preferred Embodiments

[0034] A Pachi-Slo machine that is an embodiment of the present invention will be explained in detail below.

[0035] Fig. 1 is a perspective representation showing the outer appearance of a Pachi-Slo machine 60. The Pachi-Slo machine 60 has three mechanical rotatable reels 63L, 63C, 63R that function as a symbol display arrangement, and a liquid crystal display screen 64 that functions as a predictive display arrangement. The Pachi-Slo machine 60 is a gaming machine played by using a coin, a medal or a token as a game medium (not shown). Hereinafter, the game medium will be referred to as "coin".

[0036] In the front of a cabinet 61 of the Pachi-slo machine 60, a rectangular display window 62 is provided having a substantially perpendicular surface. A horizontal winning line 76 is provided on the display window 62.

[0037] The reels 63L, 63C, 63R are arranged side by side in the cabinet 61. A plurality of symbols are arranged on peripheral surfaces of the reels 63L, 63C, 63R, respectively. The symbols of each reel 63L, 63C, 63R can be observed through the display window 62.

[0038] A pedestal portion 77 having a substantially horizontal surface is formed at position lower than the display window 62 of the cabinet 61. The liquid crystal display screen 64 is arranged to have a slant surface in the center of the pedestal portion 77. The liquid crystal display screen 64 are arranged to perform a predictive display for predicting an appearance of a "Big Bonus" win (hereinafter termed "BB hit") that is an example of the specific stop state where a player can obtain big profits. The predictive display includes two kinds:

[0039] A kind of the predictive display is performed during a "reach" state where rotations of any two reels among the three reels are stopped to display the same special symbols. This predictive display is referred to as

"reach demonstration" that reflects a likelihood or reliability of appearance of the "BB hit".

[0040] Another kind of the predictive display is performed during a period from starting rotations of the three reels to establishment of the "reach" state. This predictive display is referred to as "prognostic display" that reflects a likelihood or reliability of appearance of the "BB hit" via the "reach" state.

[0041] It should be noted, however, that the present invention also includes an embodiment in which "reach demonstration" is not displayed.

[0042] There is a bucket-type coin inlet 65 in which a large quantity of coins can be held at a time in the right side of the liquid crystal display 64.

[0043] In the left side of the pedestal portion 77, there are a "1-BET" switch 67 for betting only one of credited coins for a game, a "2-BET" switch 68 for betting two of credited coins for a game, and a "Max-BET" switch 69 for betting possible maximum number of credited coins for a game through a manipulation of push button.

[0044] A start lever 70 is provided turnably within a predetermined range of angle in the left side of front of the pedestal portion 77. If a player operates the start lever 70, then the reels 63L, 63C, 63R turn and start movement of symbols appearing in the display window 62.

[0045] In the center of front of the pedestal portion 77, for stopping the symbols moving along three rows in the display window 62, three stop buttons 71L, 71C, 71R that a player operates are disposed in the lower side of the liquid crystal display 64.

[0046] A switch 66 for automatically supplying coins to credit portion (not shown) is provided on the right position of the front pedestal portion 77. When coins exceeding the possible number of credit are into the coin inlet 65 and the switch 66 is operated, the coins in a bucket of the coin inlet 65 are credited automatically so that the number of credited coins can be maintained not less than a predetermined number.

[0047] In the left side of the start lever 70, there is a C/P switch 72 for changing credit or pay-out of coins that a player obtained in a game by push button manipulation. If the C/P switch 72 is operated, then coins are paid from a coin outlet 73 of the front lower portion and are collected in a coin tray 74.

[0048] On each reel 63L, 63C a plurality of symbols (in the example, numeral patterns "1" to "9") are arranged to constitute a symbol row. Code numbers are referred to the symbols, respectively, and are stored as data table in ROM 202 (Fig. 3).

[0049] The prognostic display in the Pachi-Slo machine 60 is display for predicting that a combination of symbols will be "7-7-7" to indicate "BB hit" if the reels 63L to 63R are stopped after "reach state". As for predictive display in this machine 60, the predictive display mode can be changed with passage of time, and also the likelihood of "BB hit" by predictive display (likelihood of appearance of "BB hit" indicated by prediction that

"BB win" will come) varies with change of the predictive display mode.

[0050] For example, during rotation of the reels 63L to 63R, the liquid crystal display 64 indicates one of face symbols "1" to "8" of Fig. 2 and changes the displayed face symbol with passage of time such that "face symbol 1" is displayed when the first stop manipulation is performed by a player and "face symbol 2" is displayed when the second stop manipulation is performed by a player.

[0051] More specifically, after the reels 63L to 63R start to rotate, any face symbol is displayed and the face symbol changes its pattern, i. e., display state with passage of time. In other words, the change of display state of the face symbol shows that the likelihood of "BB hit" changes. Accordingly, a combination of a plurality of different face symbols can make the likelihood of "BB hit" increased, decreased, or increased and decreased in turn with passage of time. Also, it may always display the face symbol with no relation to the rotation of the reels 63L to 63R. If a normal pattern is "K1" and the prognostic display patterns are "K2" and "K3", then the display pattern of face symbol can change with passage of time such as K1→K2→K3→K1, or K1→K2→K1→K3→K1.

[0052] If the stop manipulation is performed by a player in the order of the left reel 63L and the right reel 63R, and the right and right reels 63L and 63R that are stopped display the same symbols indicating "reach state", then the liquid crystal display 64 indicates "reach demonstration" by various kinds of picture expression. Specifically, "reach demonstration" such as "clapping reach" or "harite reach" is performed as shown in Figs. 17 and 18. Such "reach demonstration" reflects the likelihood of appearance of the special symbol display state.

[0053] Fig. 3 shows an electrical circuit construction that includes a controller for controlling game procedure of the Pachi-Slo machine 60 shown in Fig. 1 and peripheral devices (actuators) connected to the controller.

[0054] The controller has a microcomputer 200 that is a main element and an additional circuit for sampling random number. The microcomputer 200 includes CPU 201 that performs control action according to stored program, and ROM 202 and RAM 203 that are memory means. A clock pulse generator circuit 204 for generating standard clock pulses, a random number generator 206 and a frequency divider 205 for generating random number, and a random number sampling circuit 207 are connected to CPU 201. Otherwise, the random number sampling may be executed in the microcomputer 200, namely according to program stored in CPU 201. In that case, the random number generator 206 and the random number sampling circuit 207 can be omitted or can exist for backup of random number sampling.

[0055] ROM 202 of computer 200 has stored information and data that are required for execution of procedure for displaying a plurality of display images in the

liquid crystal display 64 as will be mentioned later in addition to game control of the Pachi-Slo machine. The ROM 202 also stored a plurality of predictive display symbols for the likelihood of "BB hit", for example, a table for "prognostic facial determination" in which a plurality of "Kintaro" symbols are categorized as shown in Fig. 2. The "Kintaro" symbols are categorized into four groups A, B, C, and D that are arranged in order of the likelihood of "BB hit", and each group contains two kinds of "Kintaro" symbols with different facial expression (face symbols). The face symbols to be displayed as the prognostic display (prognostic facial expression) is selected by random number extraction. More specifically, a random number that is used to determine the prognostic facial expression as will be explained later.

[0056] In the circuit of Fig. 3, as major actuators to be controlled by control signals from microcomputer 200, there are stepping motors 75L, 75C, 75R that drive the rotation reels 63L, 63C, 63R, the liquid crystal display device 64' containing liquid crystal display 64, and a hopper (including driver for pay-out) 300 for receiving coins. A motor drive circuit 305, a liquid crystal drive circuit 304 and a hopper drive circuit 301 are connected to output port of CPU 201 through I/O port. These drive circuits each receive control signals such as drive signal output from CPU 201 to control each actuator.

[0057] Also, as input signal generating means that generates input signals necessary for the microcomputer 200 to generate control signals, there are a coin sensor 65S for detecting coin inserted into a coin inlet 65 or coin supplied from credit by pushing the switch 66; a start switch 70S for detecting operation of the start lever 70; a C/P switch 72; a reel stop signal circuit 208 for generating stop signals in response to manipulation of stop buttons 71L, 71C, 71R; a red position detecting circuit 306 that receives a pulse signal from reel rotation sensor and supplies signals to detect position of each reel to CPU 201; and a pay-out completion signal circuit 303 that generates signals for detecting completion of coin pay-out when count value of coin detector 302 (number of coins paid out from the hopper 300) is reached the predetermined number of coin,. These are connected to CPU 201 through I/O port.

[0058] In the circuit of Fig. 3, the random number generation device 206 generates random numbers in a range of numerical value. The sampling circuit 207 samples a random number at good timing after the start lever 70 is manipulated. Whether or not the random number sampled for determining "winning rank" belongs to a range of random number value in a table for a winning rank determination (Fig. 12) that is stored in ROM 202, determines "winning rank", and the control signal corresponding to the determined "winning rank" is generated.

[0059] After the reels 63L to 63R start rotation, the number of drive pulses that are supplied from the stepping motors 75L to 75R is counted and the counted value is written in a predetermined area of RAM 203. Reset pulses are produced from the reels 63L to 63R per one

round. These pulses are input to CPU 201 through the reel position detecting circuit. CPU 201 makes the counted value of drive pulses stored in RAM 203 to be "0" by the reset pulses. Then, counted value corresponding to rotational position within one round of each reel 63L, 63C, 63R is stored in RAM 203.

[0060] A symbol table is stored in ROM 202, that relates the rotational position of the reels 63L to 63R with symbol on the reels. Also, a table of winning symbol combination is stored in ROM 202. In the winning symbol combination table, the combination of winning symbols, number of coin allotted to winning, and winning determination code correspond each other. The winning symbol combination table is referred when the reels 63L to 63 R are controlled to stop and when winning is confirmed after all reels stop, respectively.

[0061] When any winning rank is internally elected by a procedure (termed "internal election") based on the random number sampling as mentioned above, in response to the operation signal that is sent from the reel stop signal circuit 208 when a player manipulates the stop buttons 71L, 71C, 71R, CPU 201 sends signals that control the reels 63L, 63C, 63R to stop at symbol display positions corresponding to a kind of winning rank elected to the motor drive circuit 305, and sends an instruction signal to the hopper drive circuit 301 for paying out a predetermined number of coins from the hopper 300. At that time, the coin detector 302 counts number of coins paid out from the hopper 300, and when the value of count is reached to the predetermined number, a coin pay-out completion signal is inputted to CPU 201. Then, CPU 201 stops driving of the hopper 300 through the hopper drive circuit 301 to finish the coin pay-out procedure.

[0062] In the election procedure as mentioned above, it is determined which is elected, the most advantageous "big bonus" ("BB") equivalent to "BB hit", the regular bonus ("RB"), lower rank of winning, replay, or loss. Here, it is termed "internal win" that the winning rank is elected by the election process.

[0063] Fig. 4 shows a kind of winning symbols of each reel 63L to 63 R that will bring winning when the reels are stopped. If the reels 63L to 63 R are stopped to display "7-7-7" along a winning line 76, then fifteen coins are paid out and "BB" win comes. The "BB" game is a game state that is the most advantageous for a player, in which the player can play three times "RB" game as will be explained next and can obtain many coins by successive election of lower ranks thirty times in maximum.

During "BB", neither "BB" nor "RB" are elected.

[0064] When "3-3-3" is displayed along the winning line 76, fifteen coins are paid out and "RB" win comes. The "RB" is a game state where a bonus game is easily elected, that is the bonus game in which a player can get fifteen coins if the symbol combination "6-6-6" is completed. During "RB", a player can play the bonus game eight times in maximum. Also, during "RB", neither "BB" nor "RB" are elected.

[0065] As for other wins, there are "lower ranks" such as: fifteen coins are paid when "5-5-5" is displayed along a winning line 76, eight coins are paid when "9-9-9" is displayed, four coins are paid when "1-1-1" or "8-8-8" is displayed, and two coins are paid when "2-2-2" is displayed. In addition, if "6-6-6" is displayed along the winning line 76, then "replay" comes. Further, the winning symbols may be not only numerals but also characters (animals and persons) or fruits such as cherry and orange.

[0066] Referring to flowcharts of Figs. 5 to 10, the operation of the Pachi-Slo machine 60 under control by the microcomputer 200 will be explained.

[0067] In Fig. 5, if a detection signal is input from coin sensor 65S by insertion of a coin to coin inlet 65 or input from a BET switch (1-BET switch 67, 2-BET switch 68 or MAX-BET switch 69) (ST100), then CPU 201 determines whether or not an input (start signal) is sent from the start switch 70S in response to manipulation of the start lever 70 (ST101). If the determination is "YES", CPU 201 makes random number extraction (ST102). In the random number extraction procedure, it extracts random numbers necessary for determination of winning rank and display content in liquid crystal display 64.

[0068] Random number extraction is executed in procedure shown by a flowchart of Fig. 7, and a range of random number to be extracted is shown in Fig. 11.

[0069] First, one random number is extracted in a range of "0" to "16383" for determination of winning rank (ST120).

[0070] Next, one random number is extracted in a range of "0" to "1" for determination of "reach permission" (ST121).

[0071] One random number is extracted in a range of "0" to "139" for determination of "reach demonstration" (ST122).

[0072] One random number is extracted in a range of "0" to "39" for determination of the first prognostic display (ST123).

[0073] Last, one random number is extracted in a range of "0" to "39" for determination of the second prognostic display (ST124).

[0074] In a flowchart of Fig. 5 again, CPU 201 determines the winning rank (ST103) after the random number extraction. In determination of eg rank, a table for winning rank determination as shown in Fig. 12 is referred to. The winning rank is determined by which range of random number value a random number extracted in ST120 belongs to. If the extracted random number belongs to the range of "0" to "49", then the winning rank is "BB" and "BB hit" is elected. If the winning rank is not "BB", then "BB lost" is elected and "RB" or loss comes.

[0075] In the following explanation, the winning rank determined by the random number extraction procedure is termed "internally elected rank".

[0076] After the internally elected rank is determined as explained above, CPU 201 determines whether or

not it is permitted to make the reels 63L to 63R to be in a "reach" state when the reels are stopped by a player's manipulation, that is termed "reach permission determination" (ST104). In the determination of "reach permission", a table for "reach" permission determination that is shown in Fig. 13 is referred. If a random number for "reach" permission determination extracted by procedure of ST103 is "0", "reach" is permitted, and if the random number is "1", "reach" is not permitted.

[0077] Next, CPU 201 procedures to select the display contents of "reach demonstration" and "prognostic display" that are indicated as predictive display for "BB hit" (predictive display selection procedure) (ST105). The details on this procedure will be explained later referring to a flowchart of Fig. 8.

[0078] After the internally elected rank, the "reach" permission and the contents of the predictive display are determined as mentioned above, CPU 201 sends drive signal to motor drive circuit 305 to drive the reels 63L, 63C, 63R (ST106).

[0079] When a player manipulates the stop buttons 71L to 71R, CPU 201 controls to stop the reels 63L to 63R and to indicate the predictive display on the liquid crystal display screen 64 on the basis of the above-mentioned determinations (ST107). The details on this procedure will be explained later referring to flowcharts of Fig. 9 and Fig. 10.

[0080] CPU 201 determines whether or not the reels 63L to 63R are stopped to form the winning symbol combination of the internally elected rank (ST108), and if "YES", then it determines whether or not the winning is "replay" (ST109). If the determination is "YES", then the procedure returns to ST101. If "NO", then CPU 201 performs pay-out of coins corresponding to the winning from the hopper 300 (ST110 of Fig. 6).

[0081] After the pay-out of coins, CPU 201 determines whether or not "BB" is generated by the winning (ST111). If the determination is "YES", CPU 201 executes "BB" (ST112). If "NO", it determines whether or not "RB" is generated by the winning (ST113), and if "YES", it executes "RB" (ST114).

[0082] Next, Fig. 8 is a flowchart that shows the predictive display selection procedure in ST105 of Fig. 5.

[0083] CPU 201 determines whether or not the internally elected rank is "BB" (ST130). If the determination is "YES", CPU 201 selects one of three tables for determination of "reach demonstration for BB hit" in cases (I), (II) and (III) shown in Fig. 14 (ST131), and determines a kind of "reach" demonstration to be displayed based on the random number for determination of "reach demonstration" extracted in ST122 (ST132). That is, the "reach demonstration" to be displayed is determined in such a way that "clapping reach", "harite reach", or "all rotation reach" is determined if the extracted random number for determination of "reach demonstration" is in a range of "0" to "24", "25" to "64", or "65" to "139".

[0084] In the liquid crystal display 64, the "clapping reach" is displayed as shown in Fig.17, indicating that a

boy named "Kintaro" is clapping. The "harite reach" is displayed as shown in Fig. 18, indicating that "Kintaro" performs "harite" action, that is, "Kintaro" hits a face of somebody or the like by a palm of his hand. The "all rotation reach" indicates that all of three reels start rotation slowly at once in line with the same symbol and stop at the same time after a predetermined time.

[0085] Based on the "reach" demonstration that is determined in ST132, among a first prognostic facial expression determination table 101, a second prognostic facial expression determination table 102, and a third prognostic facial expression determination table 103 that are shown in Fig. 16, one is selected (ST133). If the "reach demonstration" determined here is "clapping reach", "harite reach", or "all rotation reach", then the first prognostic facial expression determination table 101, the second prognostic facial expression determination table 102, or the third prognostic facial expression determination table 103 is selected, respectively.

[0086] The "prognostic facial expression determination table" shown in Fig. 2 corresponds to the first prognostic facial expression determination table 101. More specifically, A, B, C and D in the first prognostic facial expression determination table 101 of Fig. 16 are identical to A group, B group, C group and D group in the table of Fig. 2, respectively. In addition, each random number range attributed to each group is further divided, whereby the prognostic display symbol is associated with a respective further division of the predetermined random number range. In the example shown in Fig. 2, each random number range is divided into two ranges such that the range of 0 to 80 is divided into two ranges of 0 to 40 and 41 to 80; the range of 81 to 110 is divided into two ranges of 81 to 96 and 97 to 110; the range 111 to 119 is divided into two ranges of 111 to 115 and 116 to 119; and the range of 120 to 139 is divided into two ranges of 120 to 129 and 130 to 139. Face symbols of "Kintaro" with different facial expressions as the prognostic display are associated with the divided random number value ranges, respectively.

[0087] The selection of a particular prognostic facial expression determination table from the six prognostic facial expression determination tables is executed based on the result of the determination whether or not there will be a "BB hit" in ST130 of Fig. 8, together with the result of the determination of the "reach demonstration" in ST132 of Fig. 8. When the combination of the results of the determination whether or not there will be a "BB hit" and the determination of the "reach demonstration" corresponds to (I) "BB hit + clapping reach" the first prognostic facial expression determination table 101 is used; when the above combination corresponds to (II) "BB hit + Harite reach" the second prognostic facial expression determination table 102 is used; when the above combination corresponds to (III) "BB hit + all rotation reach" the third prognostic facial expression determination table 103 is used; when the above combination corresponds to (IV) "no BB hit + clapping reach"

the fourth prognostic facial expression determination table 104 is used; when the above combination corresponds to (V) "no BB hit + harite reach" the fifth prognostic facial expression determination table 105 is used; and when the above combination corresponds to (VI) "no BB hit + no reach" the sixth prognostic facial expression determination table 106 is used.

[0088] If the determination is "NO" in ST130, CPU 201 determinates whether or not "reach" permission is made (ST134), and if "YES", CPU 201 selects "reach demonstration determination table for BB lost" shown in Fig. 15 (ST135) and determines a kind of "reach" demonstration to be displayed based on the random number for determination of "reach demonstration" extracted in ST122 (ST136). That is, the "reach demonstration" to be displayed is determined in such a way that "clapping reach", "harite reach", or "no reach" is determined if the extracted random number for determination of "reach demonstration" is in a range of "0" to "4", "5" to "8", or "9" to "139".

[0089] Based on the "reach" demonstration that is determined in ST136, among a fourth prognostic facial expression determination table 104 and a fifth prognostic facial expression determination table 105 that are shown in Fig. 16, one is selected (ST137). If the "reach" demonstration determined here is "clapping reach" or "harite reach", then the fourth prognostic facial expression determination table 104 or the fifth prognostic facial expression determination table 105 is selected, respectively.

[0090] If the determination is "NO" in ST134, then CPU 210 goes to step ST137 without determination of "reach demonstration" and selects a sixth prognostic facial expression determination table 106.

[0091] Then, referring to the prognostic facial expression determination table that is selected in ST133 or ST137, CPU 201 determines which range of random number value in the prognostic facial expression determination table the random number for determination of the first prognostic display extracted in ST123 belongs to, thus it determines the first prognostic display to be indicated at the first time (ST138). CPU 201 further determinates which range of random number value in the prognostic facial expression determination table the random number for determination of the second prognostic display extracted in ST124 belongs to, thus it determines the second prognostic display to be indicated in the second time (ST139).

[0092] As can be seen from the random number value range of Fig. 14, when the determination of the "internal election" results in the "BB hit" (i.e., the aforementioned (I) to (III)), the range of random number values of the A group is arranged to be broad in this embodiment, and therefore the frequency of displaying the face symbols of the A group is high. Accordingly, if the face symbol belonging to the A group is displayed, the player will easily recognize the high likelihood of the "BB hit". Alternatively, when the determination of the "internal election"

results in "no BB hit" (i.e., the aforementioned (IV) to (VI)), the random number value range of the D group is arranged broad in this embodiment, which results in the frequency of displaying the face symbols belonging to the D group to be high. Accordingly, if the face symbol belonging to the D group is displayed, the player will easily recognize the low likelihood of the "BB hit".

[0093] As shown in Fig. 2, the "Kintaro" symbols having a "laughing facial expression" are associated with the face symbols belonging to the A group. Since the "BB hit" corresponds to a winning mode that gives a large award to the player, the "laughing facial expression" reflects the player's joyous feeling when the "BB hit" appears, and is effective for the player to easily recognize a high likelihood of the appearance of the "BB hit".

[0094] On the other hand, the "Kintaro" symbols having a crying facial expression are associated with the face symbols belonging to the D group. The crying expression reflects the player's joyless feeling when the "BB hit" does not appear, and is effective for the player to easily recognize a low likelihood of the appearance of the "BB hit".

[0095] The "Kintaro" symbols having unmanly facial expressions and ordinary facial expressions are associated with the face symbols belonging to the B and C groups, respectively. These symbols do not readily reflect to the player any prediction of a "BB hit" or "loss." However, when the above facial expressions are displayed in combination with a facial expression of the A group or of the D group, the player may deduce predictive information therefrom as to the likelihood of the "BB hit." Moreover, a change in the perceived likelihood of the "BB hit" will increase the player's interest in the game.

[0096] Next, referring to flowcharts of Figs. 9 and 10, the stop control of the reels 63L to 63R in ST107 and the predictive display control of the liquid crystal display 64 will be explained.

[0097] CPU 201 determines whether or not the first time stop manipulation (usually the push manipulation for the stop button 71L of the left side) is executed by a player (ST140). If the determination is "YES", CPU 201 controls stop of the reel (reel 63L of the left side if the stop button 71L of the left side is stopped) corresponding to the stop button that is stopped (ST141). After the first reel is stopped, the "face prognostic 1" that is selected as the first prognostic display is indicated (ST142).

[0098] The display example for "face prognostic 1" is shown in Fig. 19 where "Kintaro" with the "laughing facial expression" (face symbol 2 of Fig. 2) is displayed. The player therefore can predict that the likelihood of the BB hit must be high.

[0099] CPU 201 further determines whether or not the second time stop manipulation (usually the push manipulation for the stop button 71R of the right side) is executed (ST143). If the determination is "YES", CPU 201

determines whether or not the stop manipulation is executed at position (generally in a range of four symbol positions from the point of stop manipulation) to which a symbol for the "reach state" is permitted to come (ST144).

5 [0100] If the determination is "NO" in ST144, then CPU 201 executes stop control corresponding to the stop manipulation (ST145). If "YES" in ST144, then CPU 201 determines whether or not the result of "internal election" is "BB", or whether or not the "reach permission" is made except "BB" (ST146). If the determination is "YES", CPU 201 controls stop of the second reel (63R) to form "reach state" (ST148), but if "NO", CPU 201 controls stop of the second reel (63R) not to form 10 "reach state" (ST147).

[0101] After the first and second reels are stopped, the "face prognostic 2" that is selected as the second prognostic display is indicated (ST149).

[0102] The display example for "face prognostic 2" is 20 shown in Fig. 20 where "Kintaro" with the "effeminate facial expression" (face symbol 4 of Fig. 2) is displayed. The player who recognizes these displays will know that this face symbol is associated with the lower likelihood group than the former laughing face group, the player 25 may predict that the likelihood of "BB hit" must be lower than the likelihood previously recognized. When "Kintaro" with the "laughing facial expression" is displayed repeatedly, the player can predict that the likelihood of the "BB hit" is quite high. When the player recognizes 30 this, the player tends to pay more attention to the stop movement of the last reel, with a high degree of anticipation.

[0103] CPU 201 determines whether or not the "reach state" is established as a result after two reels (63L, 35 63R) stopped (ST150). If the determination is "YES", CPU 201 executes displaying of the "reach demonstration" that is determined in ST132 or ST136 (ST151).

[0104] Then, CPU 201 determines whether or not the 40 last stop manipulation (push manipulation for the central stop button 71C in the embodiment) is executed (ST152). If the determination is "YES", CPU 201 executes the stop control corresponding to the stop manipulation (ST153). Of course, the above stop manipulation is not limited to the order of left, right and center, but it 45 may be executed in optional order by a player.

[0105] Also, display timings for the predictive displays ("face prognostic 1" and "face prognostic 2") may be of various patterns as follows:

[0106] Fig. 21 shows an illustrative graphical representation of a timing diagram of the display timing for the prognostic display performed by the changing facial expression of "Kintaro" mentioned above.

[0107] In Fig. 21, "face prognostic 1" is displayed 50 when the left reel 63L is stopped (t9), and "face prognostic 2" is displayed when the right reel 63R is stopped (t14).

[0108] Alternatively, as shown in the timing diagram of Fig. 22, a plurality of the prognostic display symbols

may sequentially be displayed until the one reel is stopped. In Fig. 22, "face prognostic 1" and "face prognostic 2" are sequentially displayed during the period after the left reel 63L is stopped and until the right reel 63R is stopped next (that is, from t9 to t14).

[0109] Although the display of the prognostic display symbol is to be executed synchronously with stopping of each reel, the display timing of the prognostic display symbols is not limited thereto. The following (1) to (7) of the display timing of the prognostic display symbols will be described below. These are grounded in the point of view that the prediction display is provided for predicting a special symbol display state that will appear when the rotating reel is stopped, by displaying a plurality of the prognostic display or the "reach demonstration" in sequential timing relative to each other. Although two types of the prognostic symbols are displayed in the following explanation, at least one or any number type of prognostic display symbols may be displayed in the invention.

(1) The timing diagram of Fig. 23 shows an embodiment of the invention in which the prognostic display symbols are displayed during time period from the start of turns of the reels to the stop of a first one of the reels (hereinafter referred to as the "first reel stop"). Similarly, subsequent stopping of a second one of the reels is referred to as the "second reel stop" and the stopping of a third one of the reels is referred to as the "third reel stop". The "face prognostic 1" and "face prognostic 2" are sequentially displayed after the turns of the three reels are started, such sequential display continuing until any one of the reel (left reel 63L in this embodiment) is stopped.

(2) The timing diagram in Fig. 24 shows an embodiment of the invention in which the prognostic display symbols are displayed from the first reel stop to the second reel stop. Turns of the three reels are started. From the time that any one of the other reels (left reel 63L in this embodiment) is stopped until any one of the other two reels (right reel 63R) is stopped, the "face prognostic 1" and the "face prognostic 2" are sequentially displayed.

(3) The timing diagram in Fig. 25 shows an embodiment of the invention in which the prognostic display symbols are displayed from the second reel stop to the third reel stop. Turns of the three reels are started. Thereafter, any one of the other reels (left reel 63L in this embodiment) is stopped. During the period beginning after any one of the other two reels (right reel 63R) is stopped and until the last reel (center reel 63C) is stopped, the "face prognostic 1" and the "face prognostic 2" are sequentially displayed.

(4) The timing diagram in Fig. 26 shows an embodiment of the invention in which at least one prognostic display symbol is displayed during time period

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from the start of turns of the reels to the first reel stop, and at least one prognostic display symbol is displayed during time period from the first reel stop to the second reel stop. After the start of the turns of the three reels, the "face prognostic 1" is displayed until any one of the other two reels (left reel 63L in this embodiment) is stopped. The "face prognostic 2" is displayed after one reel has been stopped and until any one of the other two reels (right reel 63R) is stopped.

(5) The timing diagram in Fig. 27 shows an embodiment of the invention in which at least one prognostic display symbol is displayed from start of the turns of the reels to the first reel stop, and at least one prognostic display symbol is displayed from the second reel stop to the third reel stop. After the start of the turns of the three reels, the "face prognostic 1" is displayed until any one of the reels (left reel 63L in this embodiment) is stopped, and after one of the reel has been stopped, the "face prognostic 2" is displayed until the other reels (right reel 63R and center reel 63C) are stopped.

(6) The timing diagram in Fig. 28 shows an embodiment of the invention in which the start of the turns of the reels, at least one prognostic display symbol is displayed from the first reel stop to the second reel stop, and at least one prognostic display symbol is displayed from the second reel stop to the third reel stop. Turns of the three reels are started, and thereafter any one of the reels (left reel 63L in this embodiment) is stopped. The "face prognostic 1" is then displayed before any one of the other two reels (right reel 63R) is stopped. After the variations of two variable symbols have been stopped, the "face prognostic 2" is displayed until the last reel (center reel 63C) is stopped.

(7) The timing diagram in Fig. 29 shows an embodiment of the invention for displaying the prognostic display symbol in which at least one prognostic display symbol is displayed from the start of the turns of reel display to the first reel stop, at least one prognostic display symbol is displayed from the first reel stop to the second reel stop, and at least one prognostic display symbol is displayed from the second reel stop to the third reel stop. After the start of the turns of the three reels, "face prognostic 1" is displayed until any one of the reels (left reel 63L in this embodiment) is stopped. The "Face prognostic 2" is displayed until any one of the other two reels (right reel 63C) is stopped, and the "face prognostic 3" is displayed until the last reels (center reel 63C) is stopped. In this case, the "face prognostic 3" is used in embodiments that display three kinds of prognostic facial expression symbols instead of two kinds of prognostic facial expression symbols.

[0110] Fig. 30 is a graphical representation of a timing diagram for the display timing of the prognostic display,

wherein prognostic displays such as the "dragonfly prognostic", the "fighting prognostic", the "bear prognostic", the "left leg lifting prognostic", and the "right leg lifting prognostic" are further added. A determination method for these prognostic displays will be explained hereinafter.

[0111] The "dragonfly prognostic", the "fighting prognostic" and the "bear prognostic" are each display for predicting the appearance of BB which is "BB hit" with a predetermined likelihood, and are each displayed when the likelihood of the "BB hit" is quite high. The display timing is arranged to be displayed for a certain period in a time from the start of the turn of the three reels to the stop of any one of the reels (left reel 63L in this embodiment) (t1 to t9).

[0112] Fig. 31 is a representation of the "dragonfly prognostic" in which a plurality of dragonflies are displayed crossing behind the "Kintaro".

[0113] Fig. 32 is a representation of the "fighting prognostic" in which "Kintaro" is displayed in his fighting pose.

[0114] Fig. 33 is a representation of the "bear prognostic," in which a bear is displayed crossing behind the "Kintaro".

[0115] Figs. 34 and 35 are representations of the "right leg lifting prognostic," and the "left leg lifting prognostic," respectively, which are displayed after the "dragonfly prognostic". When the "right leg lifting prognostic," and the "left leg lifting prognostic," may be combined to "face prognostic 1" and "face prognostic 2" a story line may be provided to the prognostic display.

[0116] For example, the "right leg lifting prognostic," includes the movements of "Kintaro" with the lifting his right leg accompanied with a shout of "Haah" like an initial charge of a Sumo athlete (the timing for this display corresponds to t6 in the timing diagram in Fig. 30), and then returning his leg and hands to the initial posture of the Sumo athlete with a Deistic shout as shown in Fig. 19 (the timing for this display corresponds to t9 in the timing diagram in Fig. 30). At this time, the stopping of left reel 63L and the display of "face prognostic 1" are executed.

[0117] After the stopping of left reel 63L, the "left leg lifting prognostic" is executed and includes the movements of "Kintaro" lifting his left leg accompanied with a shout of "Haah" similar to that which accompanies an initial charge of a Sumo athlete (the timing for this display corresponds to t11 in the timing diagram in Fig. 30), and then returning his leg and hands to the initial posture of a Sumo athlete with a shout of "Deistic" as shown in Fig. 19 (the timing for this display corresponds to t14 in the timing diagram in Fig. 30). At this time, the stopping of right reel 63R and the display of "face prognostic 2" are executed.

[0118] When the "left leg lifting prognostic" and the "right leg lifting prognostic" are displayed, left reel 63L stops together with action of the left leg of "Kintaro" and right reel 63R stops together with action of the right leg

thereof, thus relationship between the predictive display and the stop action of the reels can be recognized.

[0119] It may be possible to change the likelihood of the appearance of the "BB hit" depending on the degree of the lifting of the leg of "Kintaro". For example, in Fig. 36, "Kintaro" has the posture in which his left leg is lifted to a small extent, and his posture is more similar to the initial posture of a Sumo athlete. Such a prediction is displayed to indicate that the likelihood of the "BB hit" is low.

[0120] The degree of lifting the leg of "Kintaro" can be combined with the change of the facial expression, and thereby the likelihood of the "BB hit" can be indicated as changed. As described above, when the likelihood is indicated by each scene on the story line, the player would pay attention to the prognostic display in conjunction with the ongoing story and the "reach demonstration" as well as the stop display of the variably displayed symbol, whereby the variety of the game is extended and the player's interest in the game is increased.

[0121] Prognostics such as the "dragonfly prognostic," the "fighting prognostic," the "bear prognostic," the "left leg lifting prognostic," and the "right leg lifting prognostic," other than the face prognostic are, in this embodiment, are determined by using a third random number for the prognostic display determination that is extracted independently from first random numbers extracted in step ST123 and independently from second random numbers extracted in step ST124 in Fig. 7. By referring to the combination of the winning rank that internal hit ("BB hit" or "no BB hit") and the kind of "reach demonstration" that has been determined from the prognostic display determination table shown in Fig. 37, there is selected a prognostic display that is associated with the random number value range from which the third random number. Therefore, demonstrations of more complex prognostic displays can be developed, such as a sequential story of prognostic displays beyond only face prognostic, and can be determined using the random number extraction methodology described herein.

[0122] In addition the random numbers for the determination of the prognostic display are not limited in the practice of the invention to only two or three, as four or more random numbers may be extracted, thereby executing various prognostic displays with the passage of time. This would increase the extent to which the likelihood of the "BB hit" can be changed.

[0123] In the foregoing example, since the display mode for the prognostic display is ordered such that "face prognostic 1" is followed by "face prognostic 2", and each prognostic display has a predetermined probability or likelihood of the "BB hit", the likelihood of the "BB hit" may be changed by displaying the face prognostic in the order of "face prognostic 1" followed by "face prognostic 2". In addition, the likelihood of the "BB hit" is associated with each of the face prognostic, and therefore, the likelihood of the "BB hit" is determined for the combination of the face prognostic such as the com-

bination in the order of "face prognostic 1" followed by "face prognostic 2". That is, the prognostic display mode is determined in relation to the likelihood of the "BB hit", and the prognostic display mode is changeable with the change in the game resulting from the passage of time.

[0124] The present invention may include cases in which the "reach demonstration" as described in the above embodiment is not executed.

[0125] In an embodiment described below, the controller is arranged to display a predictive display mode previously determined in correspondence to the likelihood for predicting appearance of the special display state. The predictive display mode is arranged to be changeable with a change in the game resulting from the passage of time.

[0126] Further, the embodiment is arranged so that the player can expect an appearance of the "BB" with a degree of certainty, by arranging the prognostic display to predict the appearance of the "BB" with certainty of 100 %, or to display the likelihood of the "BB hit" with 0 % which would be indicated by "BB" does not appear certainly".

[0127] The present invention may include embodiments in which the likelihood of the "BB hit" corresponding to 100 % or 0 % is not provided.

[0128] Figs. 38 and 39 show appearance probability tables in which a predetermined likelihood of the "BB hit" is formed by combining a face symbol of "face prognostic 1" with a face symbol of "face prognostic 2" and an appearance probability is associated with each combination of the face prognostic. The letters A, B, C, and D in the tables correspond to A group, B group, C group, and D group, respectively, in face symbol determination table shown in Fig. 2, which will be explained later.

[0129] The appearance probability table of Fig. 38 shows cases where the determination of the "BB hit" by the internal hit. As known from the table, the appearance probabilities for combinations of the two face prognostic containing the A group and the B group are high. That is, the face symbols included in the A group and B group are selected from "laughing facial expression" and "effeminate facial expression," from which it is easy for the player to recognize that the likelihood of the "BB hit" is high. On the other hand, the appearance probabilities for combinations of the two face prognostics containing the C group and the D group are low and in some cases the appearance probability is 0 %.

[0130] The appearance probability table of Fig. 39 shows instances where the determination of the "no BB hit". As can be seen from the table, the appearance probabilities for the combinations of the two face prognostic containing the C group and the D group are high. That is, the face symbols included in the C and D groups are selected from ordinary facial expression and crying facial expression, and it is easy for the player to recognize to be a "no BB hit". Also, the appearance probabilities for the combination of the two face prognostic including the A group and the B group are low and in some

cases the appearance probability is 0 %. Fig. 40 shows a table in which likelihood of development into the "BB hit". In other words, the likelihood of development into the "BB" are arranged in correspondence to each combination of the face prognostic.

[0131] By way of example, when the combination of the face prognostic corresponds to "A-A" the probability of development into the "BB hit" is 37.11 % and the possibility of the appearance of the "BB" is quite high compared with the other combinations. On the other hand, and the probability of development into the "BB hit" for the combinations of "C-C," "C-D," "D-B," "D-C," and "D-D" are extremely close to 0 % such as 0.07%, 0.06%, 0.02%, 0.1%, and 0.03%, respectively, the possibility of the appearance of the "BB hit" is extremely low. However, even if a face symbol of the A group has appeared as the first "face prognostic 1" the probability of development into the "BB hit" becomes 0.17 % when a face symbol of the D group appears subsequently as "face prognostic 2". As a result, the "BB hit" hardly appears. That is, if a face symbol of the A group first appears as "face prognostic 1", the player expects a higher likelihood of development into the "BB hit" at this time compared to the appearance of a face symbol of the B, C or D group, so that the likelihood of the "BB hit" may be high at this time. At the time when the face prognostic of the D group appear as "face prognostic 2", the likelihood of development into the "BB hit" is changed to a lower value compared with the value at the time of "face prognostic 1" so that the likelihood of the "BB hit" becomes lower compared with at the time of "face prognostic 1".

[0132] Even if a face symbol having a low likelihood appears first as "face prognostic 1", the likelihood of development into the "BB hit" may be greatly changed depending on a face symbol that will subsequently appear as "face prognostic 2". For example, even if the face symbol of the A group appears first as "face prognostic 1" the probability of development into the "BB hit" is reduced to as low as 3.17 % when a face symbol of the B group appears subsequently as "face prognostic 2". However, if a face symbol of the B group appears as "face prognostic 1" and a face symbol of the B group appears subsequently as "face prognostic 2", the probability of development into the "BB hit" is increased to 18.07 %. Thus, even if the face symbols with the low likelihood of development into the "BB hit" appear first, the probability of development into the "BB hit" is sometimes increased depending on the face prognostic that will subsequently appear. As a result, the player may sustain his expectation for the "BB hit" until the last prognostic display symbol appears.

[0133] The determination whether or not the display will be developed into the "reach demonstration" with the predetermined probabilities depends on the combination of the prognostic facial expressions. Fig. 41 shows a table in which the likelihood of development into "reach demonstration" are arranged correlated to each

combination of the prognostic facial expressions.

[0134] For example, 100 % probability or likelihood of development into "reach" is associated to each three combinations of "A-A," "A-B;" and "B-B". When two of the face prognostic of the A and B groups sequentially appear; the likelihood of subsequent development into "reach demonstration" is very high. However, even in the combination of the A and B groups, the probability is decreased to 25 % in the combination of "B-A". Even if a face symbol of the A group has appeared as the first "face prognostic 1," the likelihood of development into "reach" may greatly be changed depending on the face symbol that will subsequently appear as "face prognostic 2". For example, if a face symbol of the A group appears as "face prognostic 2" the probability of development into each is 100 %, as mentioned above. However, if a face symbol of the D group appears as "face prognostic 2" the probability of development into "reach" becomes 2 %. Similar to the likelihood of development into the "BB hit" described above, if a face symbol having a low likelihood of development into "reach" has appeared, the likelihood of development into "reach" is sometimes increased depending on the face symbol that subsequently appears.

[0135] When the predetermined prognostic display pattern (combination of the prognostic faces) corresponding to the likelihood of "BB hit" is produced as explained above, the procedure by a controller is different from as shown in Fig. 5. More specifically, the procedures of the random number extraction and the predictive display selection are different from those that are executed in ST102 and ST105 of Fig. 5, respectively. The random number extraction procedure (the second random number extraction procedure) and the predictive display selection procedure (the second predictive display selection procedure) are shown by flowchart in Figs. 42 and 43, respectively.

[0136] In the second random number extraction procedure shown in Fig. 42, CPU 201 extracts not two random numbers for the "prognostic facial expression" determination (one for the first prognostic display determination and another for the second prognostic display determination) by the random number extraction procedures (ST123 and ST 124 of Fig. 7), but one random number for prognostic display determination, that is, a random number for the "prognostic facial expression" determination (ST123'). A range of random number extracted is "0-39" same as the ranges of random number for the first and second predictive display determinations mentioned above.

[0137] In the second predictive display selection procedure shown in Fig. 43, CPU 201 determines whether or not the internally elected rank is "BB" (ST130'). If the determination is "YES", then CPU 201 selects "reach demonstration determination table for BB hit" shown in Fig. 14 (ST131') and determines a kind of "reach demonstration" to be displayed based on the random number for the "reach demonstration determination" ex-

tracted in ST122' of Fig. 42 (ST132').

[0138] Based on the "reach demonstration" determined in ST132', CPU 201 selects either of face prognostic combination determination tables of Figs. 44 to 46 (ST133'). If the "reach demonstration" determined is "clapping reach", "harite reach", or "all rotation reach", CPU 201 selects "face prognostic combination determination table" of Fig. 44 ((I) "BB hit" + "clapping reach"), Fig. 45 ((II) "BB hit" + "harite reach"), or Fig. 46 ((III) "BB hit" + "all rotation reach"), respectively.

[0139] If the determination is "NO" in ST130', then CPU 201 determines whether or not "reach permission" is executed (ST134'). If "YES", then CPU 201 selects the "reach demonstration determination table for no BB hit" shown in Fig 15 (ST135'), and determines a kind of "reach demonstration" to be displayed based on the random number for the "reach demonstration determination" extracted in ST122' of Fig. 42 (ST136).

[0140] Based on the "reach demonstration" determined in ST136', CPU 201 selects either of "face prognostic combination determination table" of Fig. 47 or Fig. 48 (ST137'). That is, if "reach demonstration" determined is "clapping reach" or "harite reach", CPU 201 selects the face prognostic combination determination

table of Fig. 47 ((iv) "no BB hit" + "clapping reach") or Fig. 48 ((v) "no BB hit" + "harite reach").

[0141] If the determination is "NO" in ST134', i.e., the "reach permission" is not executed, then CPU 201 does not execute the determination of "reach demonstration" but selects "face prognostic combination determination table" of Fig. 49 ((vi) "no BB hit" + "no reach") (ST137').

[0142] Referring to the "face prognostic combination determination table" that is selected in ST133' or ST137', CPU 201 determines which range of random number value in the "face prognostic combination determination table" the random number for face prognostic combination determination extracted by the procedure of ST123' belongs to, thus it determines a face prognostic combination to be displayed (ST138').

[0143] Next, a procedure for determining the face prognostic combination to be displayed will be explained. The procedure is executed, with reference to the face prognostic determination tables shown in Figs. 44 to 49, based on the internal winning rank, the selected "reach demonstration" and the extracted random number for the face prognostic display combination determination.

[0144] As mentioned above, the random number for the determination of the face prognostic combination is extracted in the range of "0" to "39". In the face prognostic combination determination tables shown in Figs. 44 to 49, predetermined ranges of random number values are associated with combinations of the two face prognostic ("face prognostic 1" + "face prognostic 2"), respectively.

[0145] When the case of the "BB hit" and "reach demonstration" corresponds to the "clapping reach" demonstration (I), the face prognostic combination determina-

tion table of Fig. 44 is referenced for determining a combination of face prognostic based on the random number extracted for the determination of the prognostic face display combination. If the extracted random number for the determination of the prognostic face display combination belongs to the range of 0 to 11, the combination of the face prognostic of "A-A" is determined. Then, referring to face symbol determination table shown in Fig. 50, face symbol 1-face symbol 1 is selected as the combination of the face prognostic of "A-A" when the extracted random number for the prognostic face display combination determination in the range of 1 to 11 is an even number, (that is, 0, 2, 4, 6, 8, 10). The "face symbol 2-face symbol 2" is selected when the extracted random number for the prognostic face display combination determination in the range of 1 to 11 is an odd number, (i.e., 1, 3, 5, 7, 9, 11). In the face symbol combination determination table shown in Fig. 20, when the extracted random number for the prognostic face display combination determination is 12, the combination of face prognostic is "A-B". Referring to the A group and the B group in the face symbol determination table of Fig. 50, face symbol 1 is selected as "face prognostic 1" and face symbol 3 is selected as "face prognostic 2," because the random number for the prognostic face display combination determination is an even number.

[0146] In the face prognostic combination determination tables of Figs. 44 to 49, the values of random numbers are not assigned in equal distributions to the various combinations of the face prognostic accommodated in each table. More specifically, each table does not accommodate all of the combinations of the face prognostic, and some combinations are designated to a wider range of random number values as compared to other combinations, whereby some combinations are more often selected.

[0147] In each face prognostic combination determination table, the random number value range assigned in this embodiment of the invention to each of the combinations of the face prognostic is not uniform.

[0148] For example, the combination of "A-A" is a combination that has a high likelihood of the "BB hit" and hence this combination is accommodated to a greater extent in the face prognostic combination determination tables ((I) of Fig. 44 to (III) of Fig. 46) that are referred to when the "BB hit" determination results in the "BB hit". In other words, the sum of the random number value range for all of the "A-A" combinations accommodated in the face prognostic combination determination table that is referred when the "BB hit" determination results in a "BB hit" is larger than the sum of the random number value range of all of the "A-A" combinations accommodated in the prognostic facial expression combination determination table that is referenced when the "BB hit" determination results in a "no BB hit".

[0149] In each of the face prognostic combination determination tables, the random number value range cor-

responding to the "A-A" combination of the face prognostic is different from the random number value range for the other combinations, and the random number value range associated thereto is also biased (that is, not uniformly distributed) for each of the face prognostic combinations.

5 [0150] Since the combination of "A-A" is not included in the (V) "no BB hit + harite reach" of Fig. 48 and in the (VI) "no BB hit + no reach" of Fig. 49, if the combination "A-A" should appear, then the combination of "no BB hit" and "harite reach" and the combination of "no BB hit" and "no reach" may not appear.

10 [0151] Since the "BB hit + all rotation reach" of (III) in Fig. 46 has associated therewith a relatively high likelihood of the appearance of the "BB hit," the combinations of the face prognostic having low likelihood for appearance of the "BB hit," such as the combination of "D-C" and the combination of "D-D," etc., are not included. Therefore, when the combinations of the face prognostic of "D-C," "D-D," etc. appear, the combination of the

15 "BB hit" and the "all rotation reach" never appear.

[0152] By providing the above prognostic display, a player can, through experience, infer detailed information from these prognostic displays. Therefore, by watching a prognostic display, the expert player can determine in some instances that the prognostic display may develop into a particular kind of "reach demonstration," and ultimately develop into the "BB hit" with significant certainty.

20 [0153] In addition to the foregoing, by displaying the first prognostic display ("face prognostic 1") and the second prognostic display ("face prognostic 2") successively with the passage of time, the player will easily remember the change of a series of movements or the change of the face expressions.

25 [0154] Furthermore, the display time of two prognostic displays can be made quite short. In such a case, the interest of the player in the game may be enhanced, because the player is invited to concentrate.

30 [0155] Two or more kinds of prognostic displays may be provided in accordance with the invention, and the mode of the combination also may be selected optionally. The change of the display may be executed in the manner such as, "face prognostic 1" → "face prognostic 2" → "face prognostic 3" → "face prognostic 1".

35 [0156] Though in Pachi-Slo machine 60 explained above the mechanical reels are used for variation display with one winning line, more winning lines may be arranged. In a Pachi-Slo machine has eight winning lines (three for longitude, three for transverse, and two for slant), for example, a predetermined winning line can be made effective by selection of a player.

40 [0157] Next, Fig. 51 is a perspective view of "video Pachi-Slo" machine which is another type of the Pachi-Slo machine and has an electrical display apparatus such as a CRT or a liquid crystal display device for both of symbol display arrangement and prognostic display arrangement.

[0158] The video Pachi-Slo 80 has a cabinet 81 and a display apparatus 82 having a rectangular screen arranged in a front of the cabinet 81. As shown in Fig. 52, the screen of the display apparatus 82 is divided into a symbol variation display portion 2a for displaying simulation of three lines of rotation reels of a slot machine and a plurality of symbols, and a predictive display portion 2b for indicating the "reach demonstration" or the "prognostic display". That is, the video Pachi-Slo 80 is constructed to indicate both of the symbol variation display and the predictive display such as "prognostic display" or "reach demonstration" on one screen.

[0159] In this embodiment as shown, the symbol variation display portion 2a is in the lower position of the screen of liquid crystal display apparatus 82 and the predictive display portion 2b is in the other area of the screen. Fig. 52 shows an example of the display screen, in which the variable display of symbols is superimposed on the display of "reach demonstration" or the "prognostic display". The symbol variable display portion 2a is constituted to indicate variably displayed symbols on three lines of rotation reels simulated by electric signals. The variably displayed symbols are variation symbols 2L (left symbol), 2C (central symbol), and 2R (right symbol) in the left side, center and the right side, which correspond to left reel 63L, central reel 63C and right reel 63R as explained above, respectively. The predictive display portion 2b is constituted to indicate the "reach demonstration" and the "prognostic display" by displaying a symbol, an animation, or a character. In Fig. 52, the prognostic display symbol "Kintaro" K is shown as the "prognostic display".

[0160] The "prognostic display" and "reach demonstration" displayed in the predictive display portion 2b are same as the contents displayed on the liquid crystal display 64 of Pachi-Slo machine 60 as explained above. Figs. 53 to 62 show examples of the display on the screen of liquid crystal display apparatus 82.

[0161] Figs. 53 and 54 show "reach state" in which left and right symbols 2L and 2R have been stopped at the same symbols in the symbol variation display portion 2a, and "reach demonstration" is displayed in the predictive display portion 2b. Fig. 53 shows a condition of "Kintaro's clapping" where "clapping reach" is displayed in the predictive display portion 2b for the "reach demonstration". Fig. 54 shows a condition of "Kintaro's harite" where "harite reach" is displayed in the predictive display portion 2b for the "reach demonstration".

[0162] Fig. 55 shows a condition where the left symbol 2L has been stopped in symbol variation display portion 2a and "first ace prognostic 1" is displayed in the predictive display portion 2b. "Kintaro" is displayed with the "laughing facial expression" (face symbol 2 of Fig. 2) for the "face prognostic 1".

[0163] Fig. 56 shows a condition where left and right symbols 2L and 2R have been stopped in the symbol variation display portion 2a and "face prognostic 2" is displayed in the predictive display portion 2b. "Kintaro"

is displayed with "laughing facial expression" (face symbol 4 of Fig. 2) for the "face prognostic 2".

[0164] Fig. 57 shows a condition where all of three symbols 2L, 2C, 2R are moving in symbol variation display portion 2a, and "dragonfly prognostic" is displayed in predictive display portion 2b in which dragonflies are crossing behind the "Kintaro".

[0165] Fig. 58 shows a condition where all of three symbols 2L, 2C, 2R are moving in the symbol variation display portion 2a, and "fighting prognostic" is displayed in the predictive display portion 2b in which the "Kintaro" is in fighting pose.

[0166] Fig. 59 shows a condition where all of three symbols 2L, 2C, 2R are moving in the symbol variation display portion 2a, and "bear prognostic" is displayed in the predictive display portion 2b in which a bear is crossing behind the "Kintaro".

[0167] Fig. 60 shows a condition where all of three symbols 2L, 2C, 2R are moving in the symbol variation display portion 2a, and "right leg lifting prognostic" is displayed in the predictive display portion 2b in which the "Kintaro" lifts his right leg while shouting "Haah" like a "Sumo" athlete.

[0168] Fig. 61 shows a condition where all of three symbols 2L, 2C, 2R are moving in the symbol variation display portion 2a, and "left leg lifting prognostic" is displayed in the predictive display portion 2b in which the "Kintaro" lifts his left leg while shouting "Haah" like a "Sumo" athlete.

[0169] Fig. 62 shows a condition where all of three symbols 2L, 2C, 2R are moving in the symbol variation display portion 2a, and "left leg lifting prognostic" is displayed in the predictive display portion 2b but the "Kintaro" lifts his left leg lower. Such prediction display indicates that the likelihood of the "BB hit" is low.

[0170] The display apparatus that has the symbol variation display portion 2a and the predictive display portion 2b may be an electrical display device formed by a plurality of arranged LEDs, a CRT, a plasma display, an electro-luminescence display, or a liquid crystal display, as previously mentioned.

[0171] A pedestal portion 83 having a horizontal surface is formed at position lower than the display apparatus 82. A bucket-type coin inlet 84 in which a large quantity of coin can be held at a time is disposed in the right side of the pedestal portion 83. In the left side of the pedestal portion 83, there are a 1-BET switch 86 for betting only one of credited coins for a game, a 2-BET switch 87 for betting two of credited coins for a game, and a "Max-BET" switch 88 for betting possible maximum number of credited coins for a game through one push button manipulation.

[0172] For stating symbol variation in the above display in response to manipulation of a player, a start lever 89 that can be moved within a predetermined angle is provided at the left position of the front part of the pedestal portion 83. In addition, for stopping each of variation of three lines of displayed symbols in the display

apparatus 82, three stop buttons 90L, 90C, 90R that are manipulated by a player are arranged in the center of the pedestal portion 83. In the right side of the pedestal portion 83, a switch 85 for automatically supplying coins to credit portion (not shown) is provided.

[0173] In the left side of the start lever 89, there is a C/P switch 91 for changing credit or pay-out of coins that a player obtained in a game by push button manipulation. If the C/P switch 91 is manipulated, coins are paid from a coin outlet 92 of the front lower portion and are collected in a coin receiving portion 93.

[0174] The video Pachi-Slo 80 is constituted such that a player can play game as well as the Pachi-Slo machine 60. The procedure for the symbol variation display on the display apparatus 82 of the video Pachi-Slo 80 will be explained below with reference to flowcharts of Figs. 63 and 64.

[0175] In Fig. 63, the variation of displayed symbols is started (ST15), then a determination is made whether or not the "dragonfly prognostic" is selected (ST16). If the determination is "YES", the "dragonfly prognostic" shown in Fig. 57 is displayed (ST17). Next, a determination is made as to whether or not the "fighting prognostic" is selected (ST18). If the determination is "YES", the "fighting prognostic" shown in Fig. 58 is displayed (ST19). Next, a determination is made whether or not the "bear prognostic" is selected (ST20). If the determination is "YES", the "bear prognostic" shown in Fig. 59 is displayed (ST21).

[0176] Subsequently, in Fig. 64, the determination is executed as to whether or not the "right leg lifting prognostic" or the "left leg lifting prognostic" is selected (ST22). If the determination is "NO", the procedure will go to step ST25. If the determination is "YES", the "right leg lifting prognostic" shown in Fig. 60 is displayed (ST23) and left symbol 2L is stopped (ST24).

[0177] Next, a determination is made whether or not "face prognostic 1" is displayed (ST25). If the determination is "YES", the "face prognostic 1" shown in Fig. 55 is displayed (ST26). Subsequently, a determination is made whether or not the "right leg lifting prognostic" or "left leg lifting prognostic" is selected again (ST27). If the determination is "NO", the procedure will go to step ST30. If the determination is "YES", the "right leg lifting prognostic" is displayed (ST28) and right symbol 2R is stopped (ST29).

[0178] Next, the determination is executed as to whether or not the "face prognostic 2" is displayed (ST30). If the determination is "YES", the "face prognostic 2" shown in Fig. 56 is displayed (ST31).

[0179] A determination is made as to whether or not the left and right stop symbols are the same (ST32). If the determination is "YES", the selected "reach demonstration" is displayed (ST33). If "clapping reach" is selected as "reach demonstration", then the "clapping reach" shown in Fig. 53 is displayed. If "harite reach" is selected as "reach demonstration", then the "harite reach" shown in Fig. 54 is displayed. Then, center sym-

bol 2C is stopped (ST34), thereby finishing the display procedure on liquid crystal display 2.

[0180] The display timings for the predictive displays are not limited to the timing in the flowcharts explained above, as well as in the Pachi-Slo machine 60.

[0181] Also, in the video Pachi-Slo 80, the control of the game procedures can be executed as well as in the Pachi-Slo machine 60, but the symbol variation display is executed in the display apparatus 82. Therefore, it is possible to delete the motor drive circuit 305 and the reel position detecting circuit 306 in the electric circuit constitution of Fig. 3.

[0182] If both of the symbol variation display and the predictive display such as "prognostic display" or "reach demonstration" are executed on the same screen as in the video Pachi-Slo 80, then the relationship between the symbol variation display and the predictive display can be recognized well and a player's interest to a game may be increased. Further, since a player would watch the screen with little movement of glance, the player can easily recognize the predictive display such as "prognostic display" or "reach demonstration" with the passage of time.

Claims

1. A gaming machine having:

30 a symbol display arrangement for variably displaying a plurality of symbols that is arranged to display a stop state when variation of the displayed symbols is stopped and to give a profit to a player when the stop state corresponds to a specific stop state;

35 a predictive display arrangement for performing predictive display whether or not the specific stop state is displayed when the variation of the displayed symbols is stopped;

40 a start device for starting the variation of the displayed symbols in response to a manipulation by a player;

45 a stop device for stopping the variation of the displayed symbols in response to manipulation by a player; and

50 a controller for determining whether or not it is permitted to display the specific stop state and for determining a predictive display mode based on the result of the determination; the controller being arranged to control the predictive display arrangement such that a likelihood of appearance of the specific stop state is changeable in conjunction with a change in the game resulting from passage of time.

2. The gaming machine according to claim 1, wherein the likelihood of an appearance of the specific stop state is changeable by displaying a plurality of pre-

dictive display symbols sequentially with passage of time.

3. The gaming machine according to claim 2, wherein the plurality of the predictive display symbols are displayed successively. 5

4. The gaming machine according to claim 3, wherein the plurality of the predictive display symbols depicts a story line.

5. The gaming machine according to claim 1, 2, 3 or 4 wherein the controller is provided with a predictive display memory for storing a plurality of predictive display symbol groups, each having the plurality of predictive display symbols, by classifying them in accordance with the likelihood of appearance of the specific stop state. 15

6. The gaming machine according to claim 1, 2, 3, 4 or 5, wherein the likelihood can be changed depending on timing of stopping the variation of the displayed symbols. 20

7. The gaming machine according to any one of the preceding claims, wherein the predictive display is performed one or more times until variation of any one of the variably displayed symbols is stopped.

8. The gaming machine according to any one of claims 1 to 6, wherein the predictive display is performed one or more times during a period from when variation of any one of the variably displayed symbols is stopped to when variation of further one of the variably displayed symbols is stopped. 30

9. The gaming machine according to any one of claims 1 to 6, wherein the predictive display is performed one or more times during a period from when variations of any two of the variably displayed symbols are stopped to when variation of further one of the variably displayed symbol is stopped. 40

10. The gaming machine according to any one of claims 1 to 6, wherein the predictive display is performed one or more times until the variation of any one of the variably displayed symbols is stopped and then one or more times until variation of further one of the variably displayed symbols is stopped. 45

11. The gaming machine according to any one of claims 1 to 6, wherein the predictive display is performed one or more times until variation of any one of the variably displayed symbols is stopped and then one or more times during a period from when variation of further one of the variably displayed symbols is stopped to when variation of further one of the variably displayed symbols is stopped subsequently. 50

12. The gaming machine according to any one of claims 1 to 6, wherein the predictive display is performed one or more times during a period from when variation of any one of the symbols is stopped to when variation of further one of the variably displayed symbols is stopped, and then one or more times until variation of further one of the variably displayed symbols is stopped subsequently.

13. The gaming machine according to any one of claims 1 to 6, wherein the predictive display is performed one or more times until variation of any one of the variably displayed symbols is stopped, then further one or more times until variation of further one of the variably displayed symbols is stopped, and then further one or more times until variation of further one of the variably displayed symbols is stopped subsequently.

14. The gaming machine according to any one of the preceding claims wherein both of the variable display of symbols and the predictive display are performed in a display screen.

15. A gaming machine having:
 a plurality of mechanical rotatable reels each provided with a plurality of symbols that are arranged to display a stop state when their rotations are stopped and to give a profit to a player when the stop state corresponds to a specific stop state;
 a random number generator for generating a random number;
 a start device for extracting the random number and starting the rotations of the reels in response to manipulation by a player;
 stop devices for stopping respective rotations of the reels in response to each manipulation by the player;
 an electrical display arrangement for performing predictive display whether or not the specific stop state is displayed when the rotations of the reels are stopped; and
 a controller for determining whether or not it is permitted to display the specific stop state and for determining a predictive display mode based on the result of the determination, the controller being arranged to control the predictive display arrangement such that a likelihood of appearance of the specific stop state is changeable in conjunction with a change in the game resulting from passage of time. 55

F I G. 1

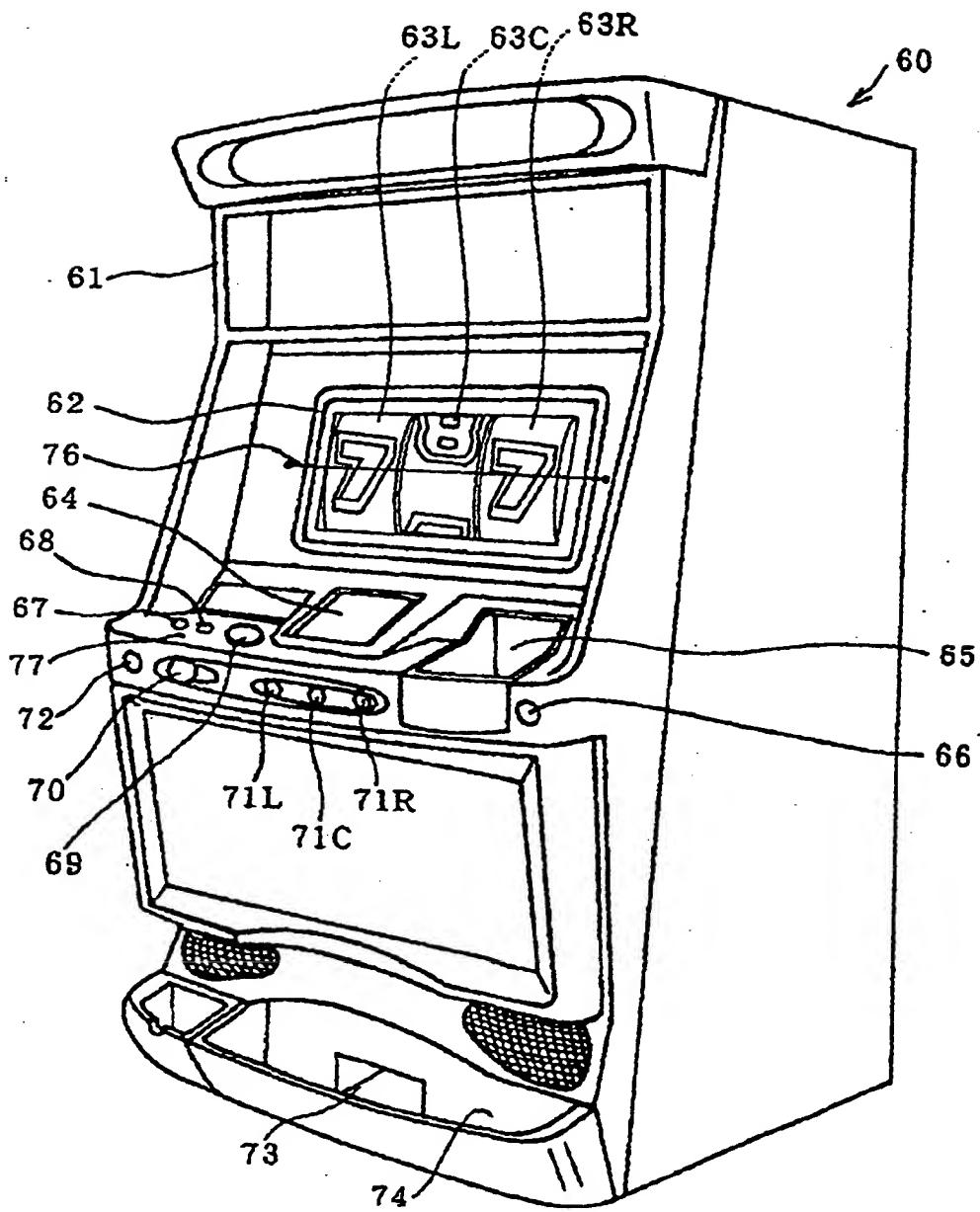


FIG. 2

FACE PROGNOSTIC DETERMINATION TABLE
("BB HIT + CLAPPING REACH")

PROGNOSTIC GROUP	RANDOM NUMBER FOR PROGNOSTIC DISPLAY DETERMINATION	
	0~40	41~80
A GROUP	FACE SYMBOL 1 	FACE SYMBOL 2 
B GROUP	81~96 FACE SYMBOL 3 	97~110 FACE SYMBOL 4 
C GROUP	111~115 FACE SYMBOL 5 	116~119 FACE SYMBOL 6 
D GROUP	120~129 FACE SYMBOL 7 	130~139 FACE SYMBOL 8 

FIG. 3

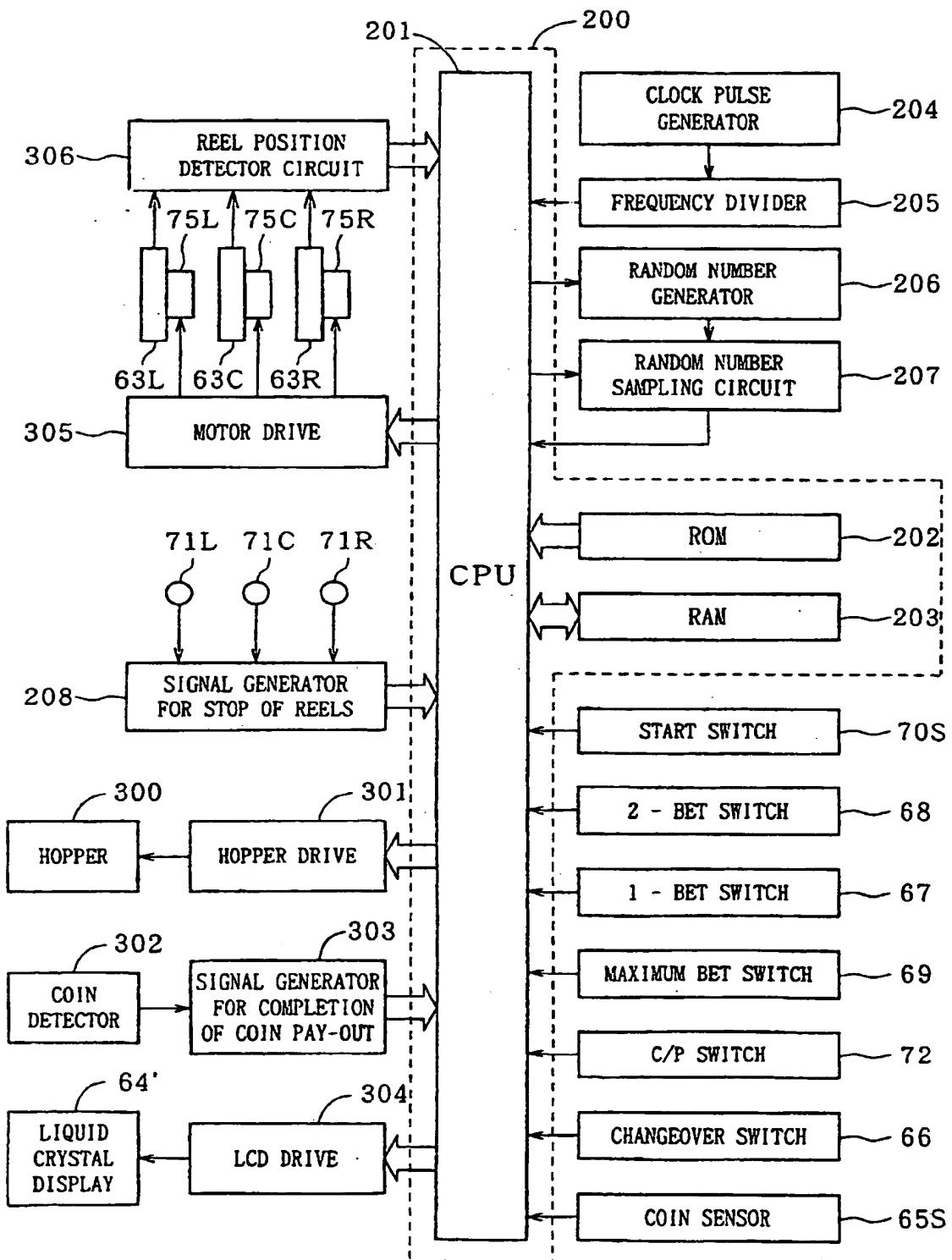


FIG. 4

WINNING PATTERN	WINNING RESULT
7 - 7 - 7	PAY OUT 15 COINS + BB
3 - 3 - 3	PAY OUT 15 COINS + RB
5 - 5 - 5	PAY OUT 15 COINS
9 - 9 - 9	PAY OUT 8 COINS
1 - 1 - 1	PAY OUT 4 COINS
8 - 8 - 8	
2 - 2 - 2	PAY OUT 2 COINS
6 - 6 - 6	REPLAY

FIG. 5

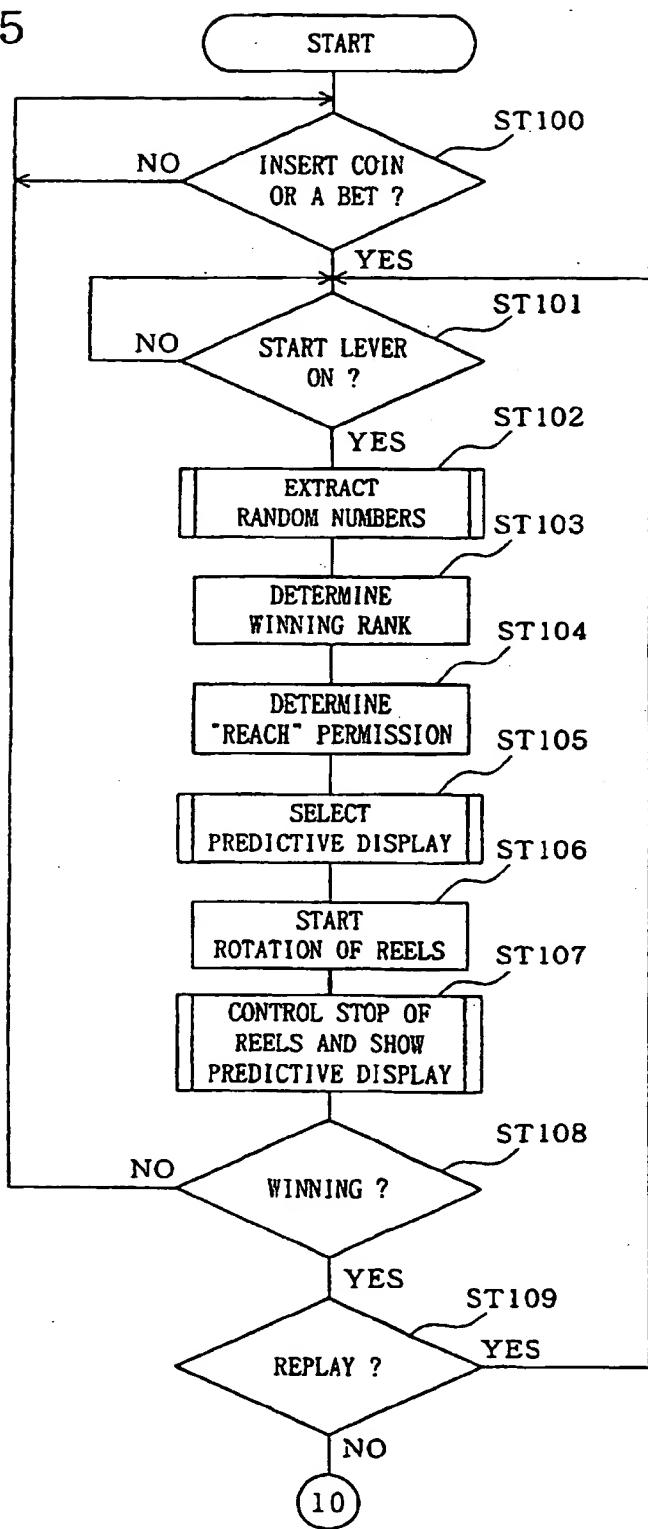
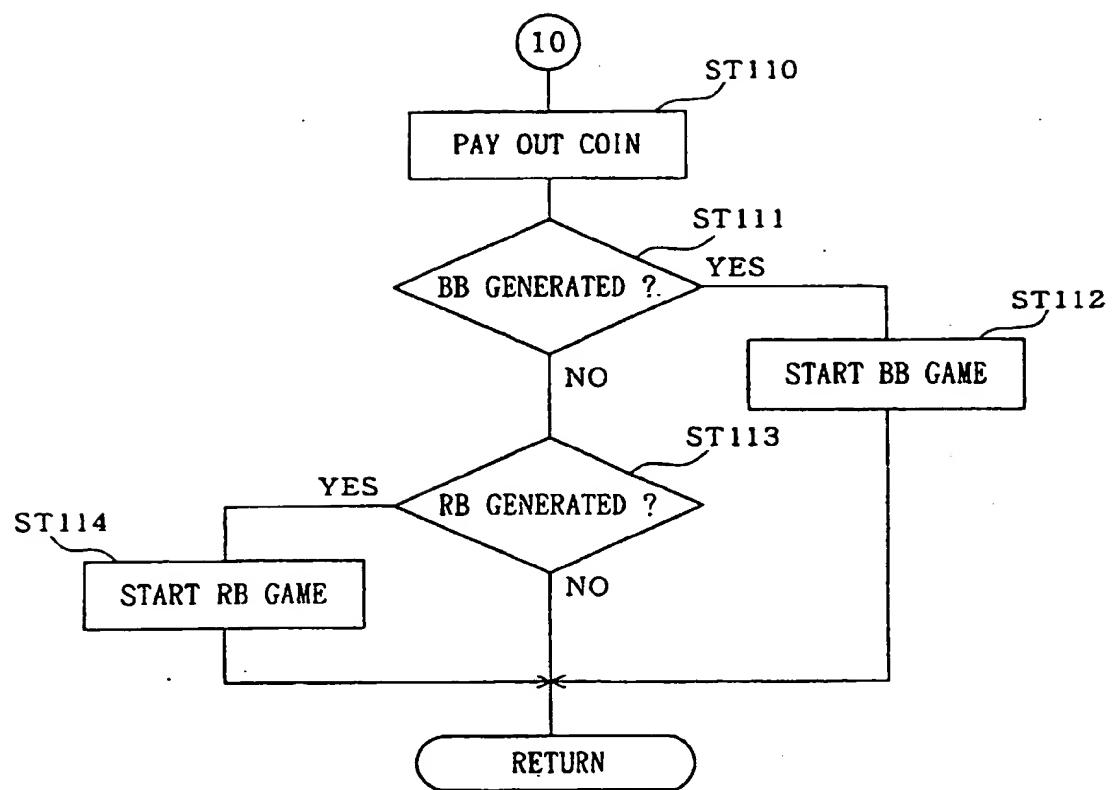


FIG. 6



F I G . 7

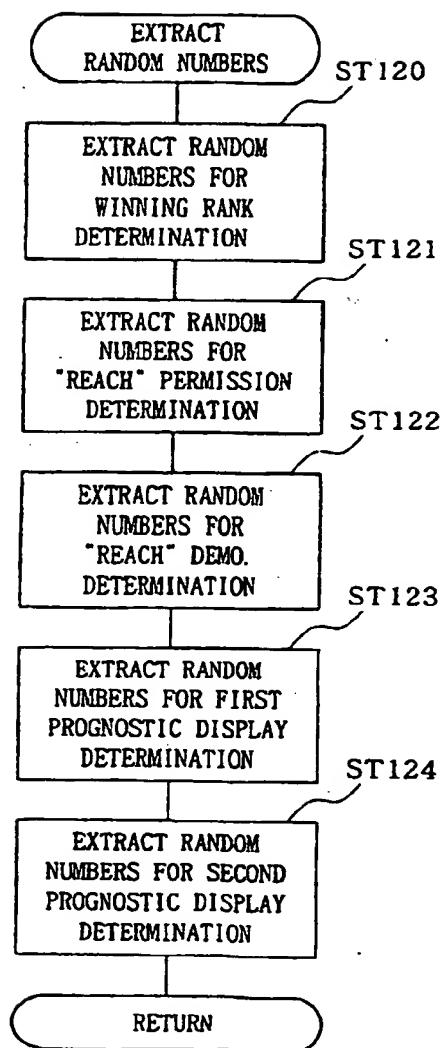


FIG. 8

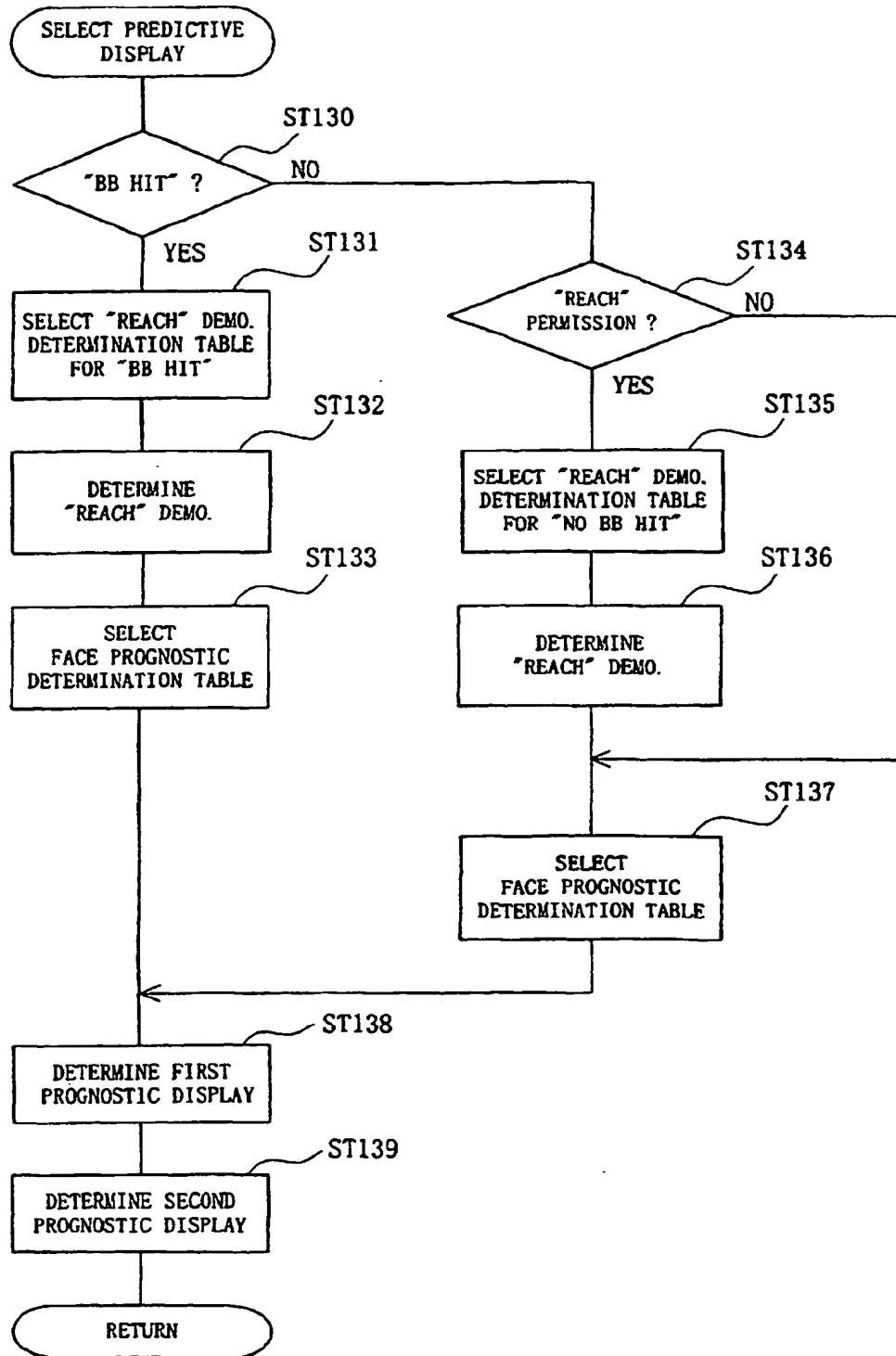
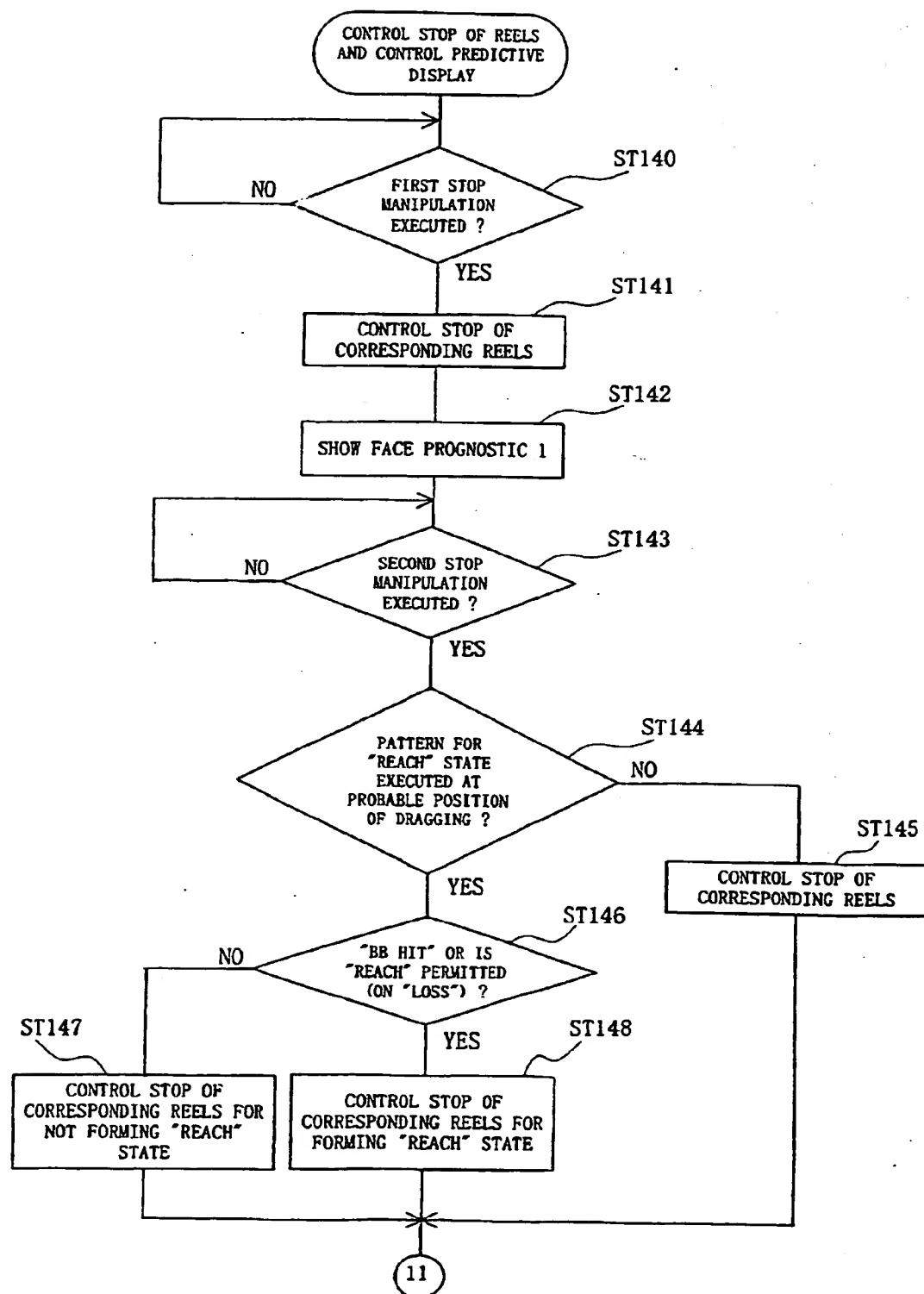


FIG. 9



F I G . 1 0

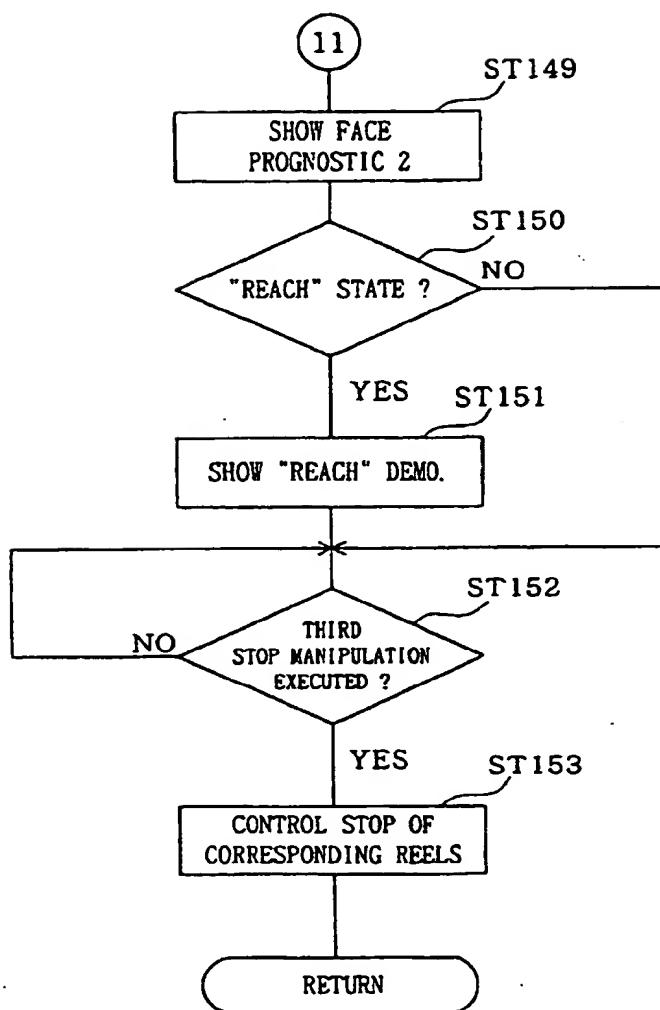


FIG. 11

KIND OF RANDOM NUMBER	RANDOM NUMBER VALUE
RANDOM NUMBER FOR WINNING RANK DETERMINATION	0~16383
RANDOM NUMBER FOR "REACH" DEMO. DETERMINATION	0~139
RANDOM NUMBER FOR FIRST OR SECOND PROGNOSTIC DISPLAY DETERMINATION	0~39
RANDOM NUMBER FOR "REACH" PERMISSION DETERMINATION	0~1

FIG. 12

WINNING RANK DETERMINATION TABLE

WINNING RANK (HIT FLAG)	BB	RB	15 COINS RANK	8 COINS RANK	4 COINS RANK	2 COINS RANK	REPLAY	"LOSS"
RANDOM NUMBER FOR WINNING RANK DETERMINATION	0~49	50~119	120~319	320~819	820~1319	1320~1819	3820~6064	6065~16383
PROBABILITY	50/16384	70/16384	200/16384	500/16384	5000/16384	25000/16384	2245/16384	10319/16384

FIG. 13

"REACH" PERMISSION DETERMINATION TABLE

	RANDOM NUMBER FOR "REACH" PERMISSION DETERMINATION
"REACH" PERMISSION	0
NO "REACH" PERMISSION	1

FIG. 14

"REACH" DEMO. DETERMINATION TABLE FOR "BB HIT"

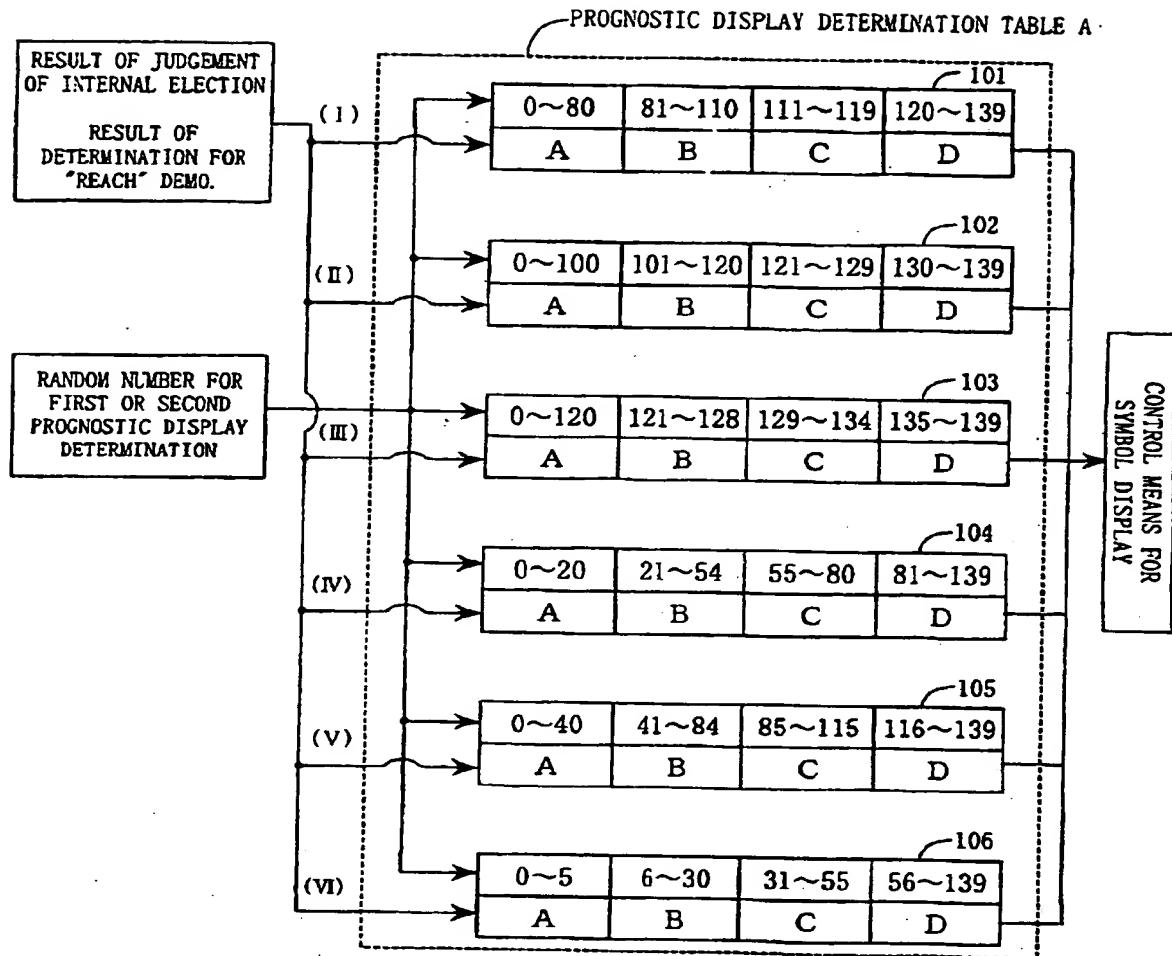
KIND OF "REACH"	RANDOM NUMBER FOR "REACH" DEMO. DETERMINATION	PROBABILITY
"CLAPPING REACH"	0~24	25/140
"HARITE REACH"	25~64	40/140
"ALL ROTATION REACH"	65~139	75/140

FIG. 15

"REACH" DEMO. DETERMINATION TABLE FOR NON-"BB HIT"

KIND OF "REACH"	RANDOM NUMBER FOR "REACH" DEMO. DETERMINATION	PROBABILITY
"CLAPPING REACH"	0~4	5/140
"HARITE REACH"	5~8	4/140
NO "REACH"	9~139	131/140

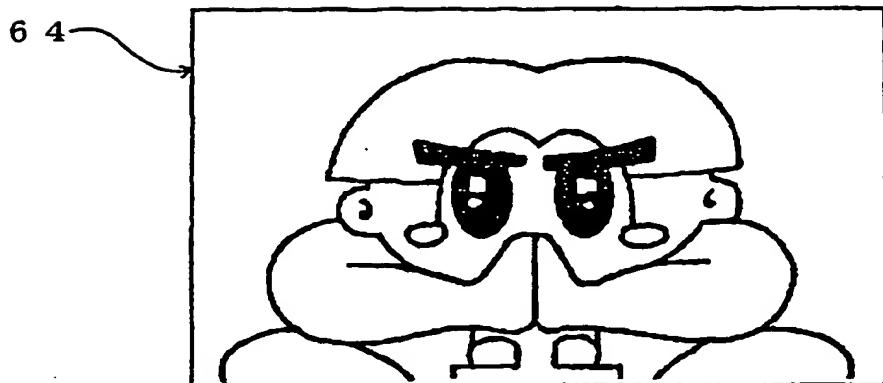
FIG. 16



- (I) "BB HIT + CLAPPING REACH"
- (II) "BB HIT + HARITE REACH"
- (III) "BB HIT + ALL ROTATION REACH"
- (IV) "NO BB HIT + CLAPPING REACH"
- (V) "NO BB HIT + HARITE REACH"
- (VI) "NO BB HIT + NO REACH"

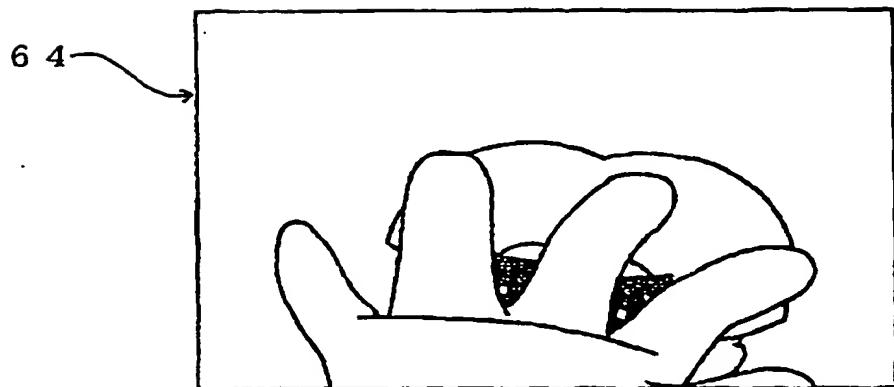
F I G . 1 7

"CLAPPING REACH"



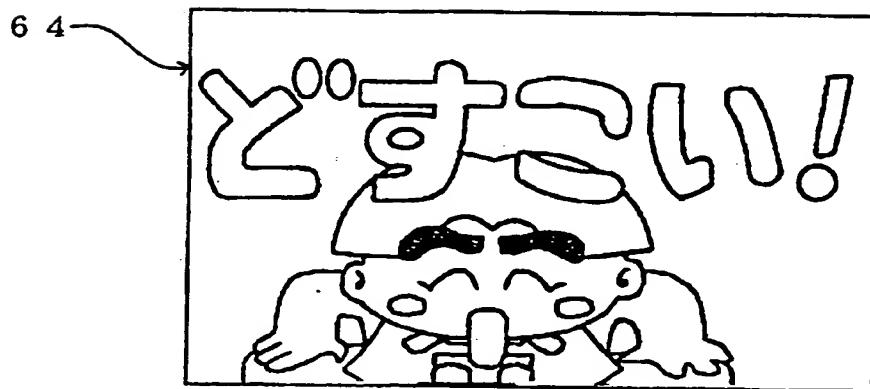
F I G . 1 8

"HARITE REACH"



F I G. 1 9

FACE PROGNOSTIC 1



F I G. 2 0

FACE PROGNOSTIC 2

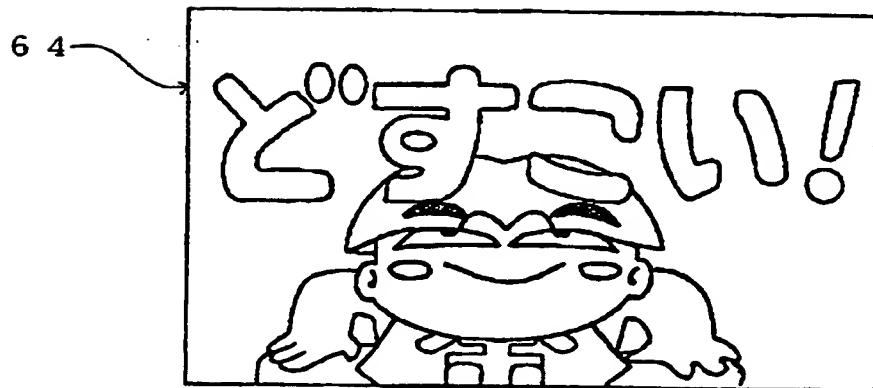


FIG. 21

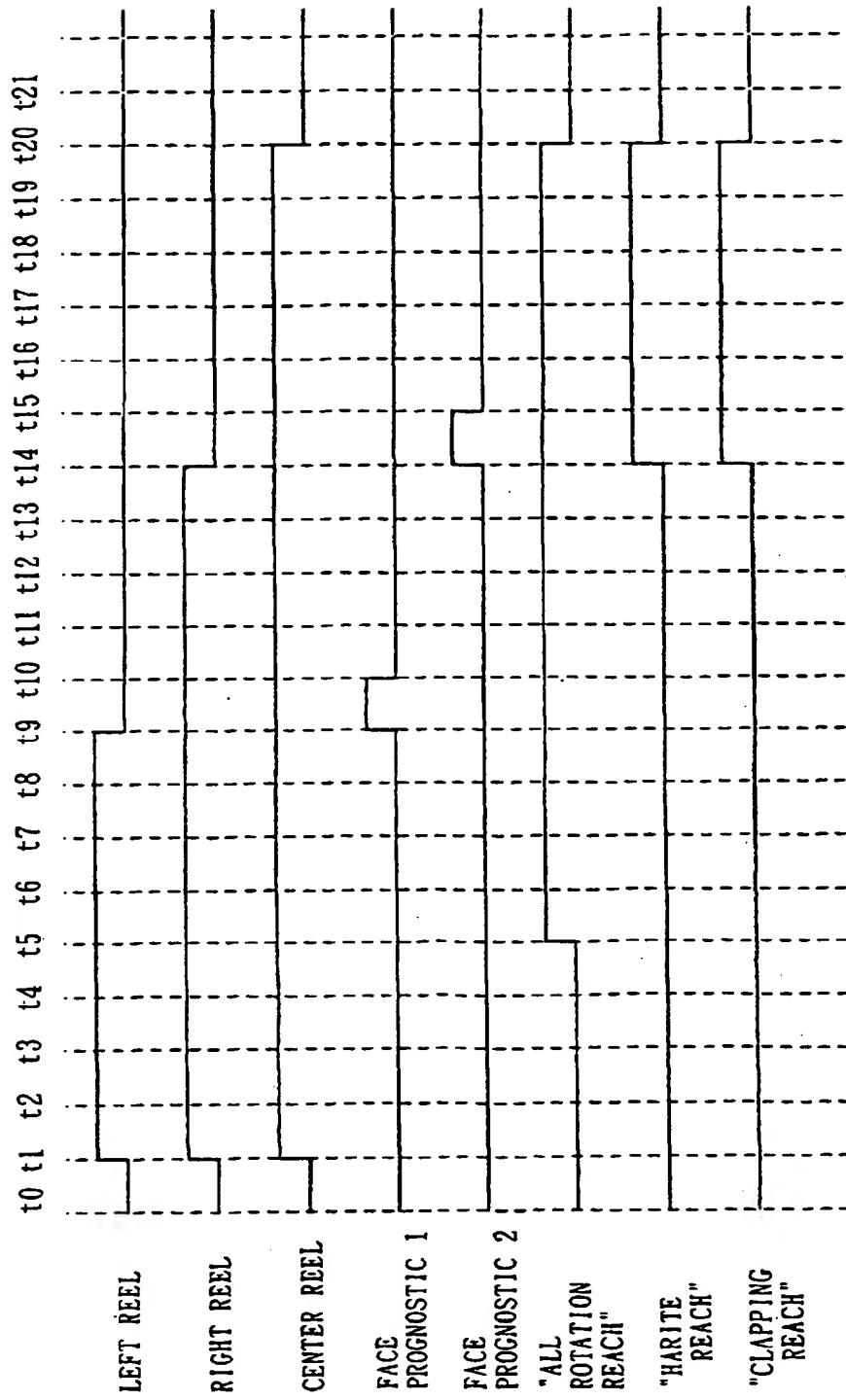


FIG. 22

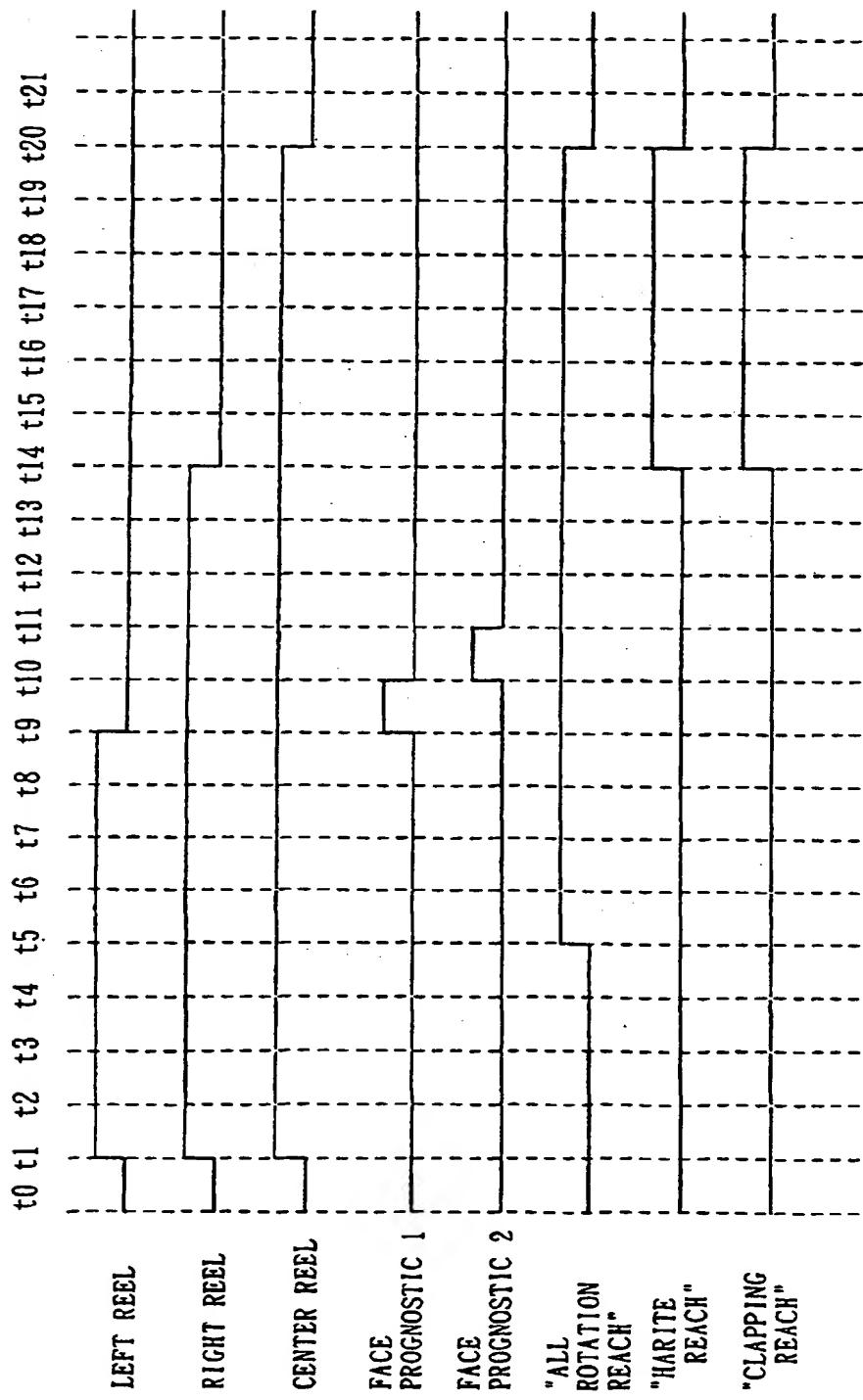


FIG. 23

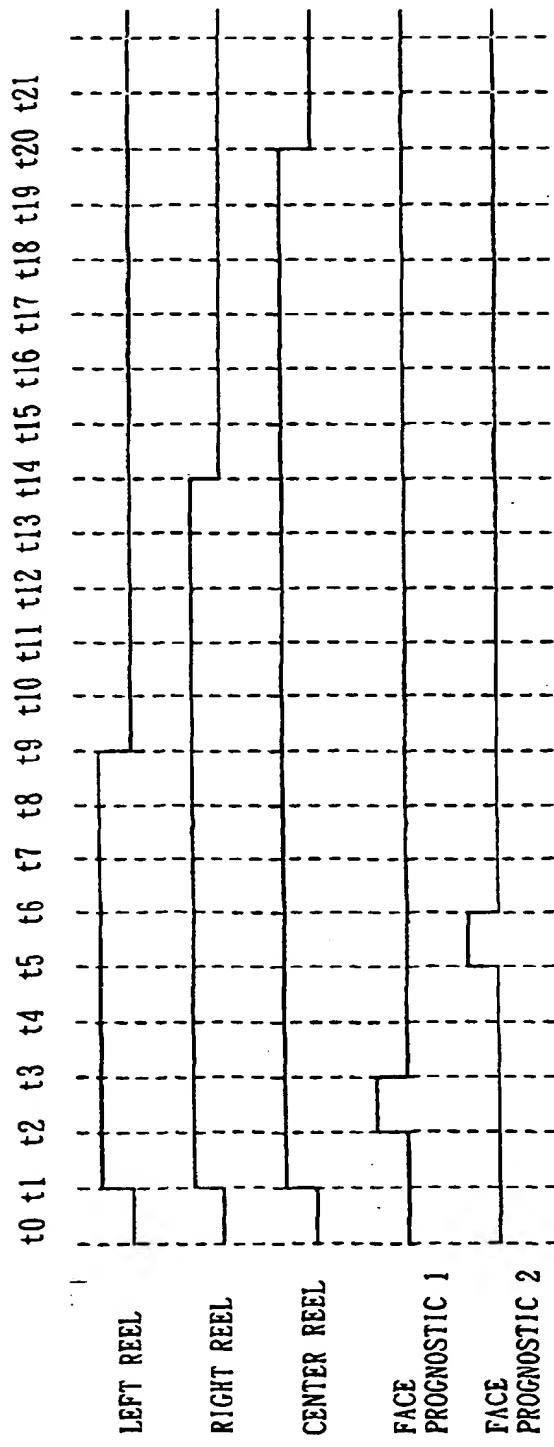


FIG. 24

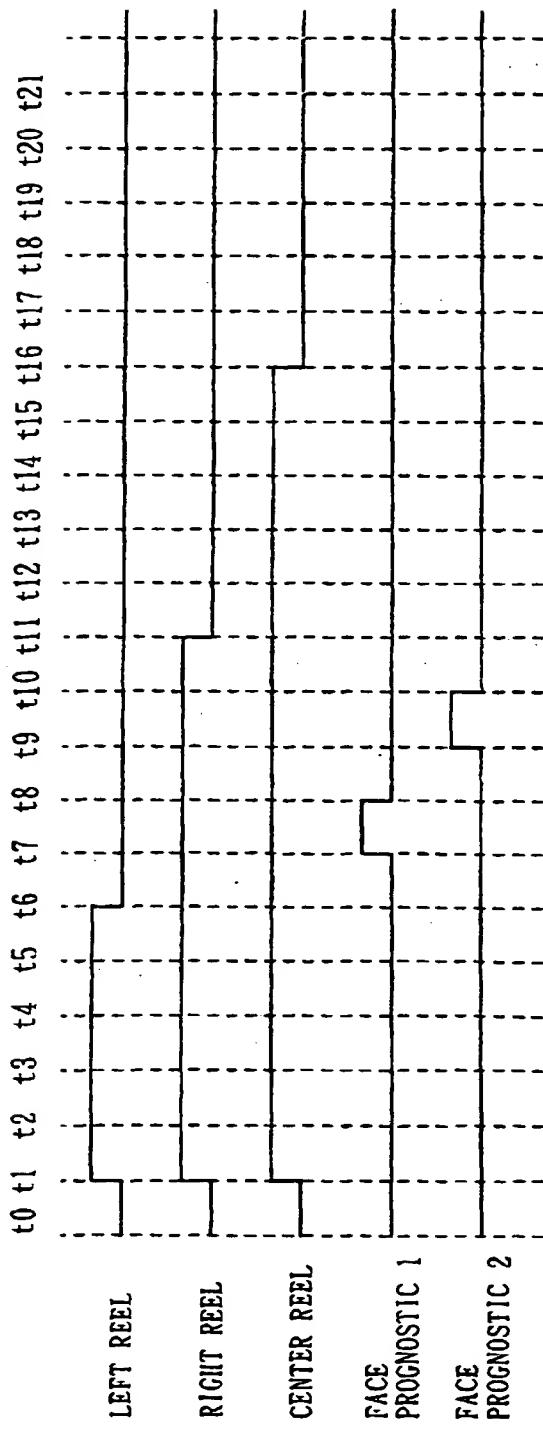


FIG. 25

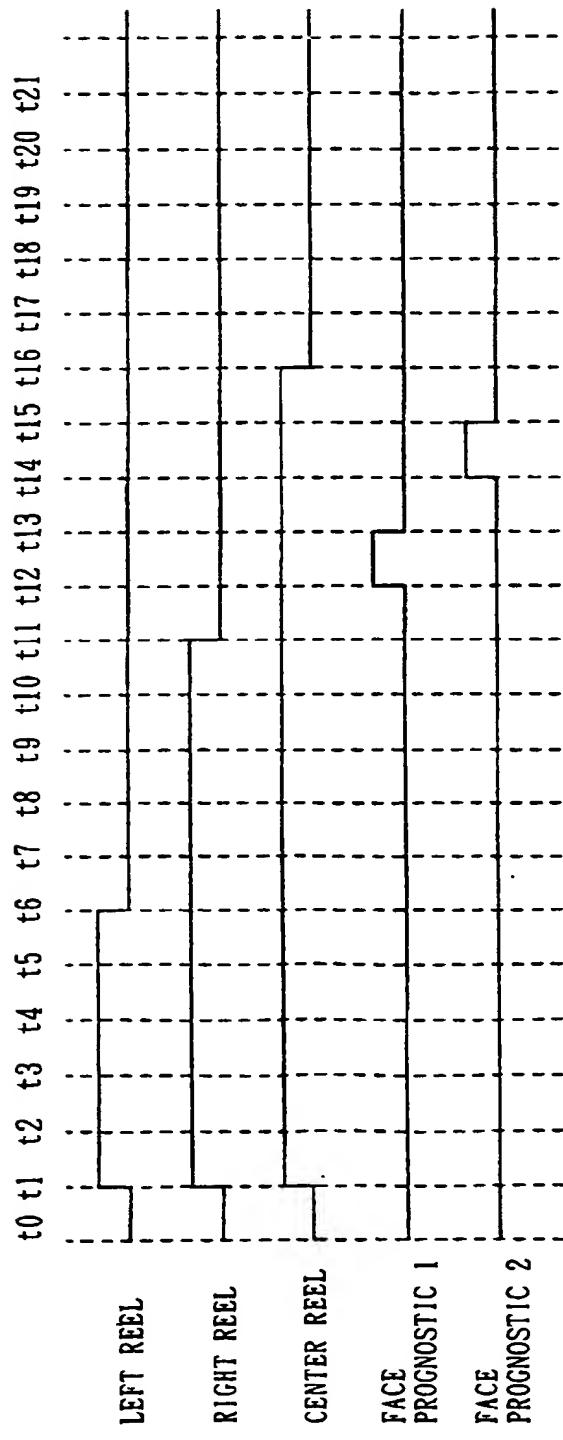


FIG. 26

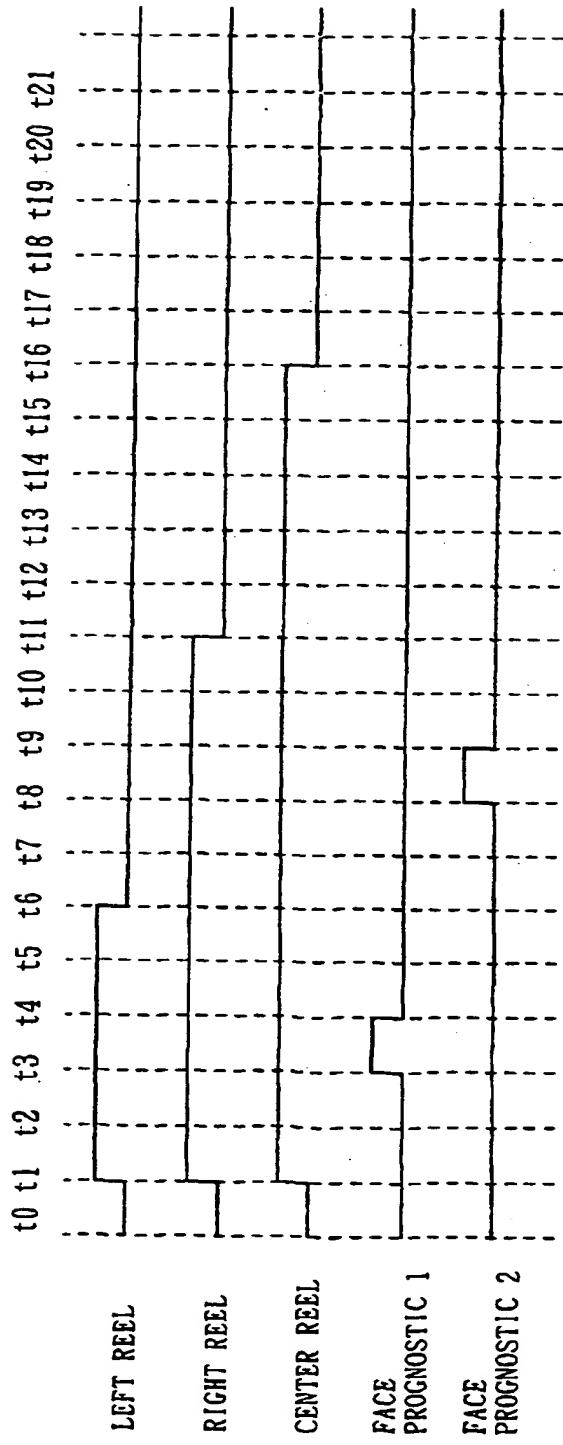


FIG. 27

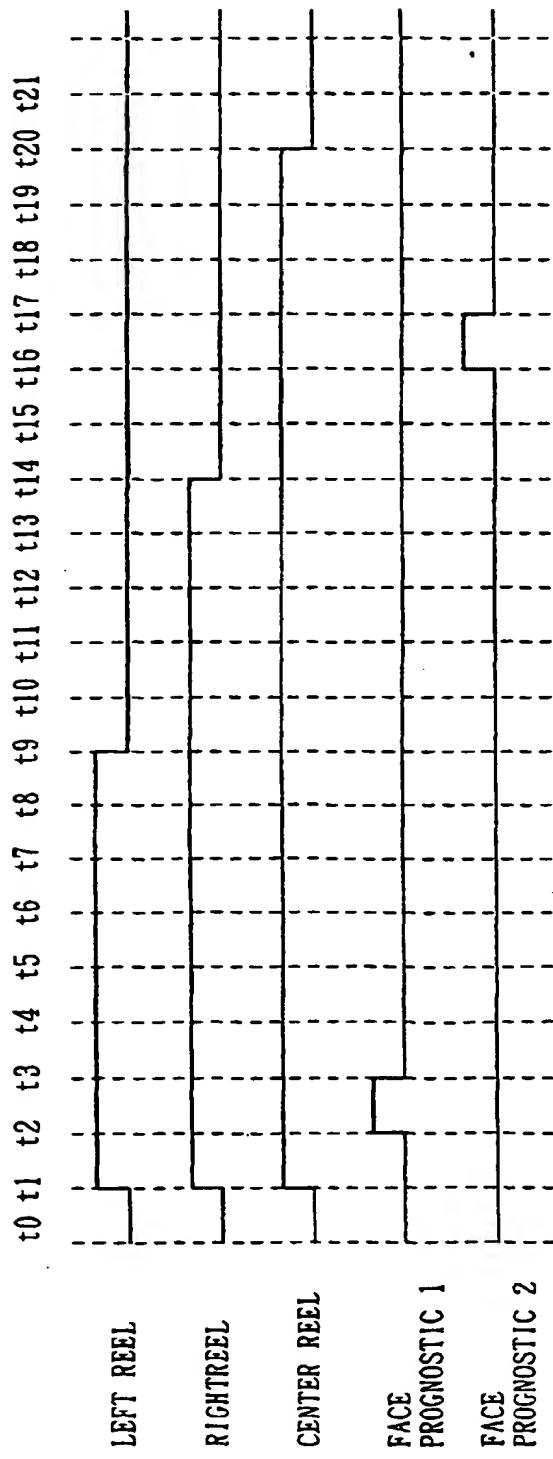


FIG. 28

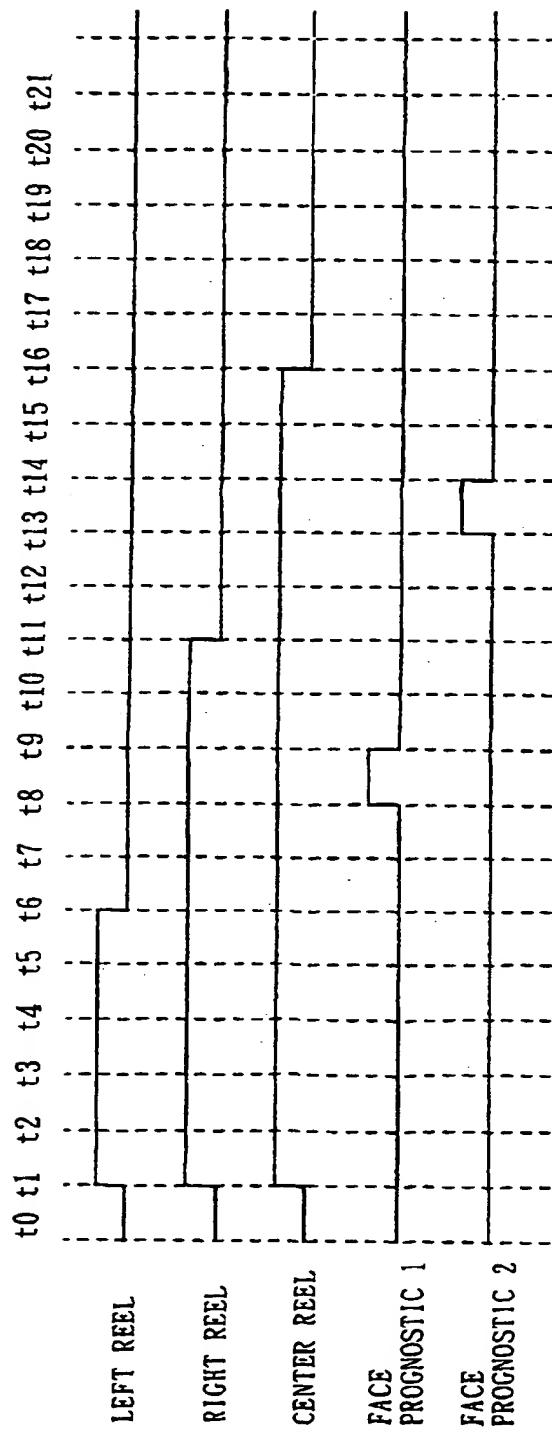


FIG. 29

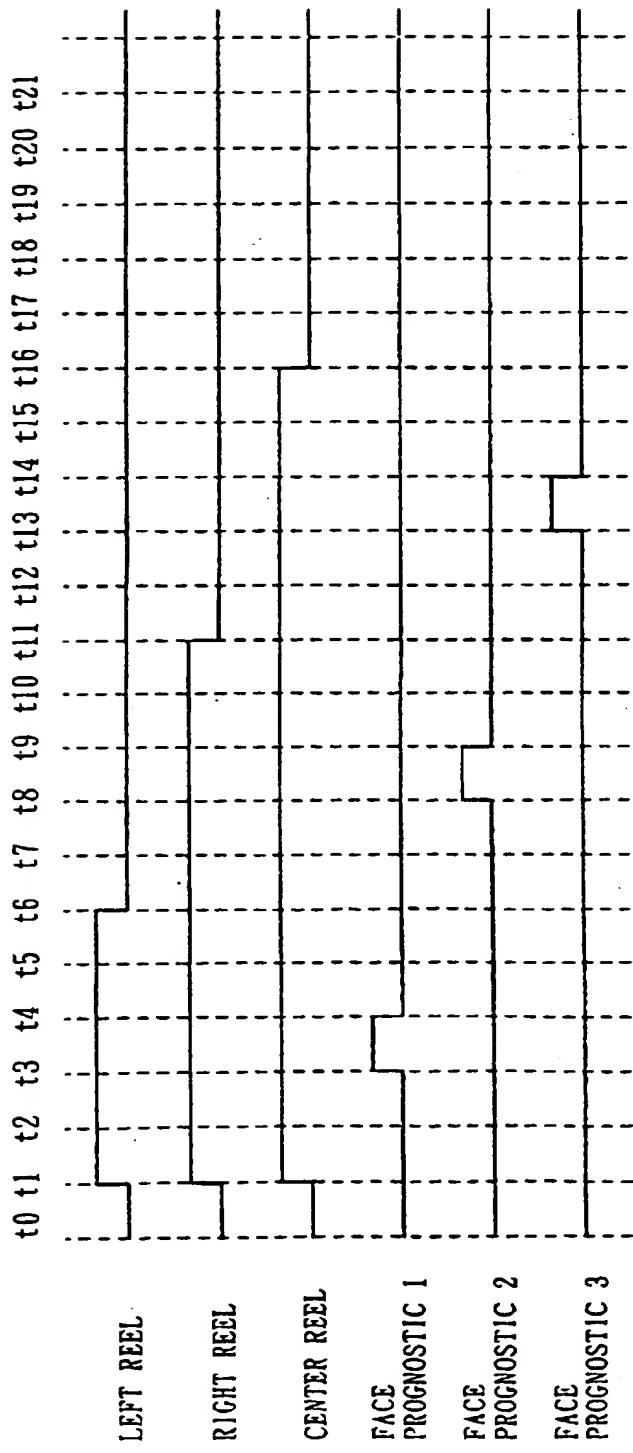
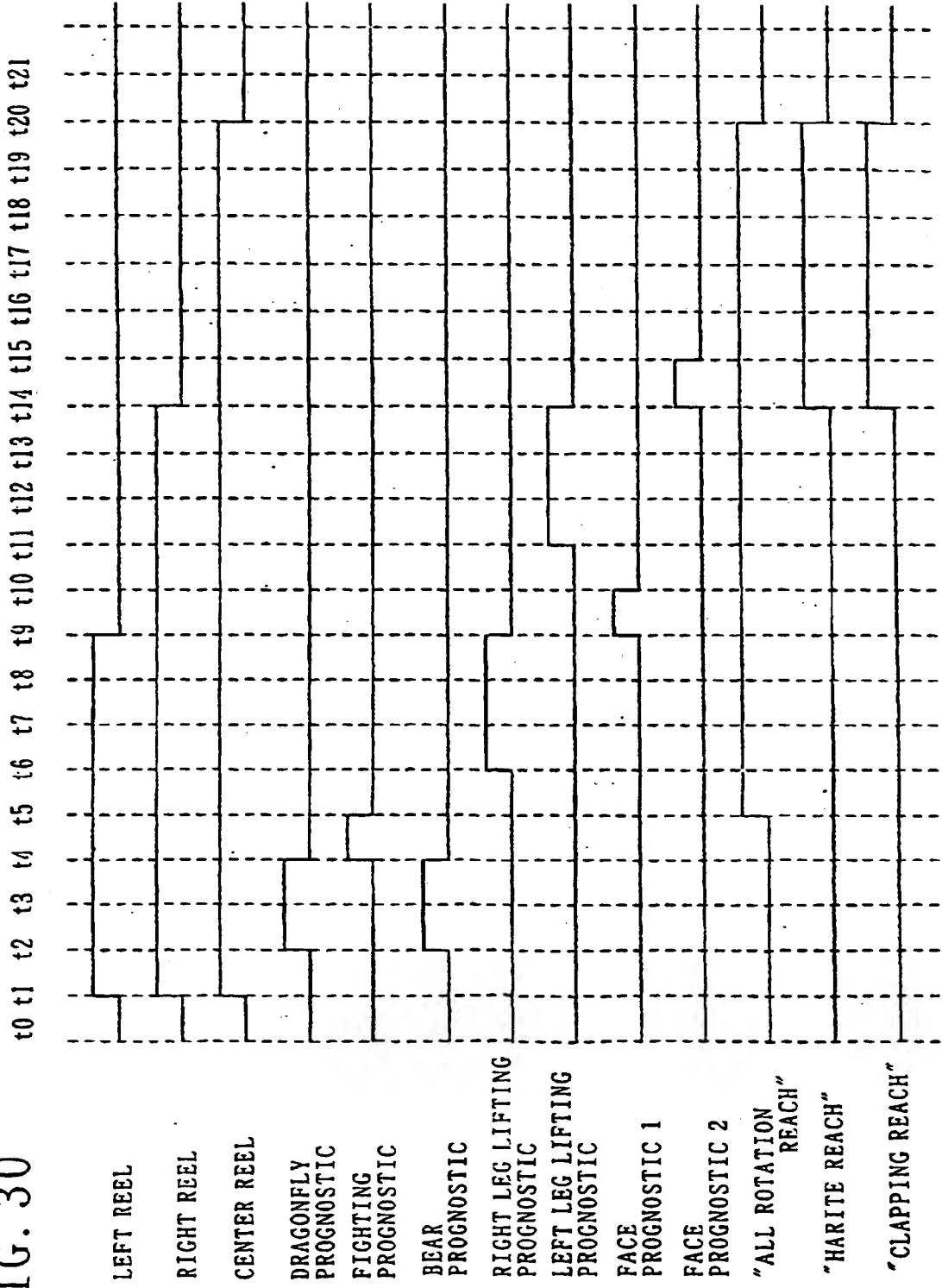


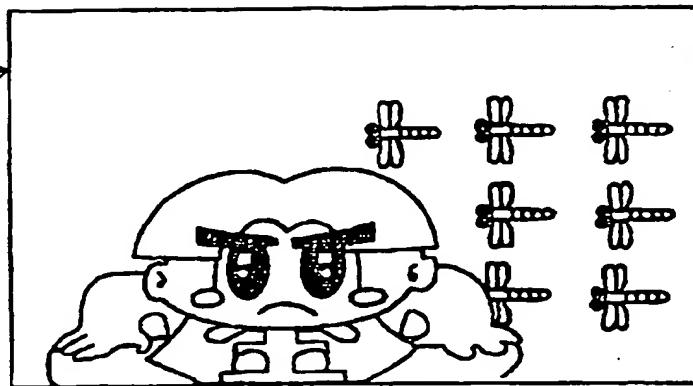
FIG. 30



F I G. 3 1

DRAGONFLY PROGNOSTIC

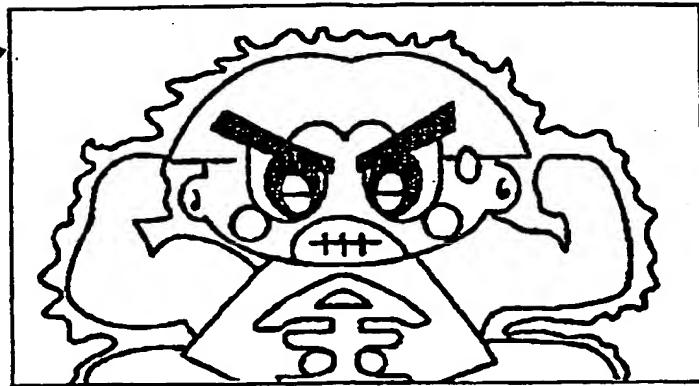
6 4



F I G. 3 2

FIGHTING PROGNOSTIC

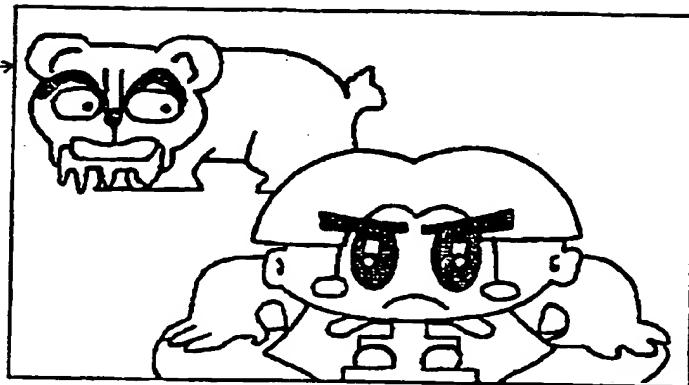
6 4



F I G . 3 3

BEAR PROGNOSTIC

6 4



F I G . 3 4

RIGHT LEG LIFTING PROGNOSTIC

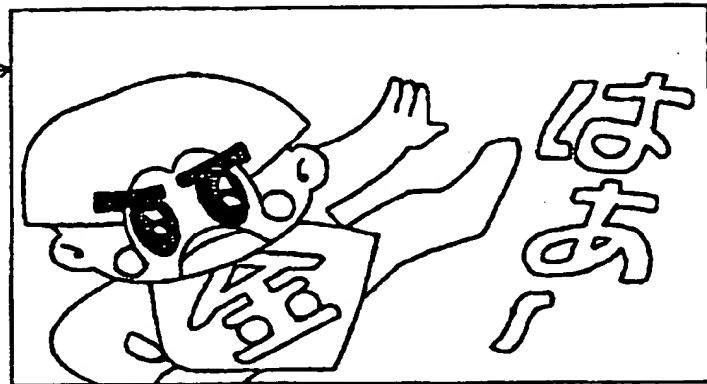
6 4



F I G . 3 5

LEFT LEG LIFTING PROGNOSTIC

6 4



F I G . 3 6

SMALL DEGREE LEG LIFTING

6 4



FIG. 37

PROGNOSTIC DISPLAY DETERMINATION TABLE B

COMBINATION OF "RESULT OF INTERNAL ELECTION" & "KIND OF REACH"	KIND OF PROGNOSTIC DISPLAY	RANDOM NUMBER FOR THIRD PROGNOSTIC DISPLAY DETERMINATION
(I) "BB HIT + CLAPPING REACH"	DRAGONFLY PROGNOSTIC	0 ~ 2 0
	FIGHTING PROGNOSTIC	2 1 ~ 7 0
	RIGHT LEG PROGNOSTIC	7 1 ~ 8 0
	LEFT LEG PROGNOSTIC	8 1 ~ 8 9
(II) "BB HIT + HARITE REACH"	DRAGONFLY PROGNOSTIC	0 ~ 2 0
	FIGHTING PROGNOSTIC	2 1 ~ 4 0
(III) "BB HIT + ALL ROTATION REACH"	DRAGONFLY PROGNOSTIC	0 ~ 5
	BEAR PROGNOSTIC	6 ~ 6 0
(IV) "NO BB HIT + CLAPPING REACH"	DRAGONFLY PROGNOSTIC	8 1 ~ 8 5
	FIGHTING PROGNOSTIC	8 6 ~ 9 0
	RIGHT LEG PROGNOSTIC	9 1 ~ 1 1 0
	LEFT LEG PROGNOSTIC	1 1 1 ~ 1 3 0
(V) "NO BB HIT + HARITE REACH"	DRAGONFLY PROGNOSTIC	8 1 ~ 9 0
	FIGHTING PROGNOSTIC	9 1 ~ 9 5
	RIGHT LEG PROGNOSTIC	9 6 ~ 1 1 0
	LEFT LEG PROGNOSTIC	1 1 1 ~ 1 3 9
(VI) "NO BB HIT + NO REACH"	DRAGONFLY PROGNOSTIC	9 1 ~ 9 5
	FIGHTING PROGNOSTIC	9 6 ~ 1 0 0

FIG. 38

APPEARANCE PROBABILITY TABLE

RESULT OF INTERNAL ELECTION	"REACH" DEMO.	(a)	(b)	(c)	(d)	(e)
"BB HIT" APPEARANCE PROBABILITY =1/256	"CLAPPING REACH" APPEARANCE PROBABILITY =25/140	A	A	12/40	300/1433600	0. 021%
			B	2/40	50/1433600	0. 003%
			C	4/40	100/1433600	0. 007%
			D	0	0/1433600	0%
		B	A	2/40	50/1433600	0. 003%
			B	9/40	225/1433600	0. 016%
			C	2/40	50/1433600	0. 003%
			D	1/40	25/1433600	0. 002%
		C	A	4/40	100/1433600	0. 007%
			B	1/40	25/1433600	0. 002%
			C	0	0/1433600	0%
			D	0	0/1433600	0%
		D	A	0	0/1433600	0%
			B	0	0/1433600	0%
			C	1/40	25/1433600	0. 002%
			D	2/40	50/1433600	0. 003%
"HARITE REACH" APPEARANCE PROBABILITY =40/140	"HARITE REACH" APPEARANCE PROBABILITY =40/140	A	A	2/40	80/1433600	0. 006%
			B	3/40	120/1433600	0. 008%
			C	4/40	160/1433600	0. 011%
			D	1/40	40/1433600	0. 003%
		B	A	9/40	360/1433600	0. 025%
			B	0	0/1433600	0%
			C	2/40	80/1433600	0. 006%
			D	2/40	80/1433600	0. 006%
		C	A	2/40	80/1433600	0. 006%
			B	6/40	240/1433600	0. 017%
			C	2/40	80/1433600	0. 006%
			D	1/40	40/1433600	0. 003%
		D	A	1/40	40/1433600	0. 003%
			B	1/40	40/1433600	0. 003%
			C	2/40	80/1433600	0. 006%
			D	2/40	80/1433600	0. 006%
"ALL ROTATION REACH" APPEARANCE PROBABILITY =75/140	"ALL ROTATION REACH" APPEARANCE PROBABILITY =75/140	A	A	15/40	1125/1433600	0. 078%
			B	3/40	225/1433600	0. 016%
			C	0	0/1433600	0%
			D	1/40	75/1433600	0. 005%
		B	A	1/40	75/1433600	0. 005%
			B	12/40	900/1433600	0. 063%
			C	0	0/1433600	0%
			D	0	0/1433600	0%
		C	A	8/40	600/1433600	0. 042%
			B	0	0/1433600	0%
			C	0	0/1433600	0%
			D	0	0/1433600	0%
		D	A	0	0/1433600	0%
			B	0	0/1433600	0%
			C	0	0/1433600	0%
			D	0	0/1433600	0%

(a) FACE PROGNOSTIC 1
(d) PROBABILITY DATA(b) FACE PROGNOSTIC 2
(e) APPEARANCE PROBABILITY

FIG. 39

APPEARANCE PROBABILITY TABLE

RESULT OF INTERNAL ELECTION	"REACH" DEMO.	(a)	(b)	(c)	(d)	(e)
"NO BB HIT" APPEARANCE PROBABILITY =255/256	"CLAPPING REACH" APPEARANCE PROBABILITY =5/140	A	A	2/40	2550/1433600	0.18%
			B	3/40	3825/1433600	0.27%
			C	4/40	5100/1433600	0.36%
			D	1/40	1275/1433600	0.09%
		B	A	2/40	2550/1433600	0.18%
			B	4/40	5100/1433600	0.36%
			C	1/40	1275/1433600	0.09%
			D	0	0/1433600	0%
		C	A	0	0/1433600	0%
			B	4/40	5100/1433600	0.36%
			C	13/40	16575/1433600	11.60%
			D	1/40	1275/1433600	0.09%
		D	A	1/40	1275/1433600	0.90%
			B	1/40	1275/1433600	0.09%
			C	3/40	3825/1433600	0.27%
			D	0	0/1433600	0%
	"HARITE REACH" APPEARANCE PROBABILITY =4/140	A	A	0	0/1433600	0%
			B	8/40	8160/1433600	0.60%
			C	2/40	2040/1433600	0.14%
			D	0	0/1433600	0%
		B	A	8/40	8160/1433600	0.60%
			B	0	0/1433600	0%
			C	0	0/1433600	0%
			D	3/40	3060/1433600	0.21%
		C	A	0	0/1433600	0%
			B	3/40	3060/1433600	0.21%
			C	3/40	3060/1433600	0.21%
			D	2/40	2040/1433600	0.14%
		D	A	2/40	2040/1433600	0.14%
			B	4/40	4080/1433600	0.28%
			C	0	0/1433600	0%
			D	5/40	5100/1433600	0.36%
	NO "REACH" APPEARANCE PROBABILITY =131/140	A	A	0	0/1433600	0%
			B	0	0/1433600	0%
			C	2/40	66810/1433600	4.66%
			D	2/40	66810/1433600	4.66%
		B	A	1/40	33405/1433600	2.33%
			B	0	0/1433600	0%
			C	2/40	66810/1433600	4.66%
			D	2/40	66810/1433600	4.66%
		C	A	1/40	33405/1433600	2.33%
			B	1/40	33405/1433600	2.33%
			C	3/40	100215/1433600	6.99%
			D	2/40	66810/1433600	4.66%
		D	A	1/40	33405/1433600	2.33%
			B	7/40	233835/1433600	16.31%
			C	3/40	100215/1433600	6.99%
			D	13/40	434265/1433600	30.29%

(a) FACE PROGNOSTIC 1 (b) FACE PROGNOSTIC 2 (c) RATE OF APPEARANCE
 (d) PROBABILITY DATA (e) APPEARANCE PROBABILITY

FIG. 40

PROBABILITY OF DEVELOPMENT INTO "BB HIT"

		② CASE OF DEVELOPMENT INTO "LOSS"		PROBABILITY OF DEVELOPMENT ①/(①+②)
		① CASE OF DEVELOPMENT INTO "BB HIT"	② CASE OF DEVELOPMENT INTO "LOSS"	
		(I) "BB HIT + CLAPPING REACH"	(IV) "LOSS + CLAPPING REACH"	
		(II) "BB HIT + HARITE REACH"	(V) "LOSS + HARITE REACH"	
		(III) "BB HIT + ALL ROTATION REACH"	(VI) "LOSS + NO REACH"	
FACE PROGNOSTIC 2				
A	A	1505/1433600	2550/1433600	37.11%
A	B	395/1433600	11985/1433600	3.18%
C	C	260/1433600	73950/1433600	0.35%
D	D	115/1433600	68085/1433600	0.17%
B	A	485/1433600	44115/1433600	1.09%
B	B	1125/1433600	5100/1433600	18.07%
C	C	130/1433600	68085/1433600	0.19%
D	D	105/1433600	69870/1433600	0.15%
C	A	780/1433600	33405/1433600	2.28%
B	B	285/1433600	41565/1433600	0.63%
C	C	80/1433600	119850/1433600	0.07%
D	D	40/1433600	70125/1433600	0.06%
D	A	40/1433600	36720/1433600	0.11%
B	B	40/1433600	239190/1433600	0.02%
C	C	105/1433600	104040/1433600	0.10%
D	D	130/1433600	439365/1433600	0.03%

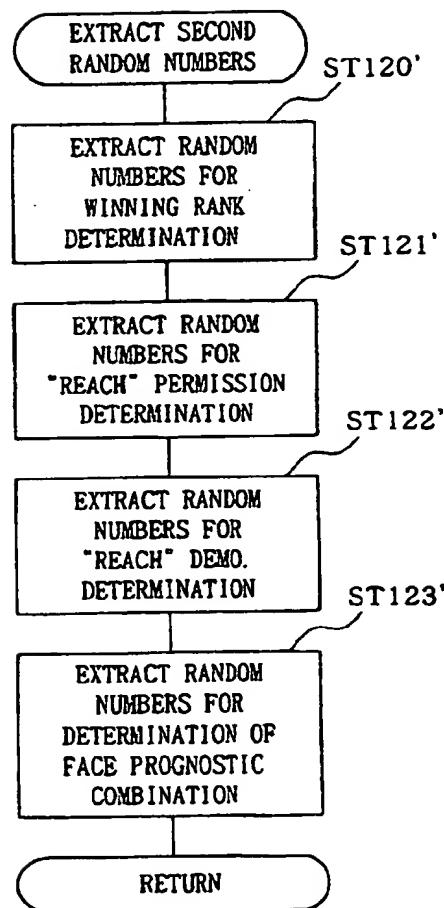
FIG. 41

PROBABILITY OF DEVELOPMENT INTO "REACH"

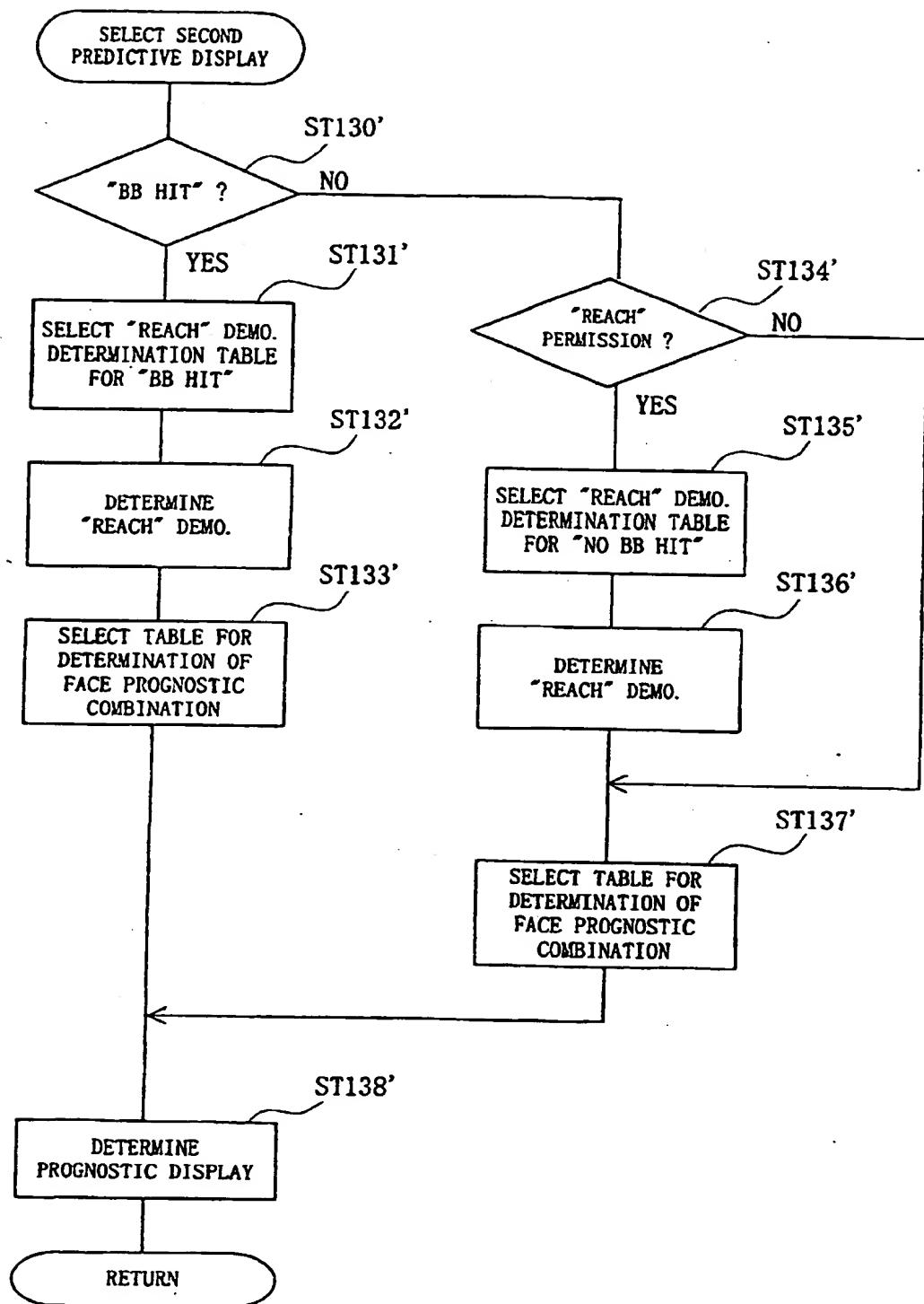
EP 1 054 368 A2

				PROBABILITY OF DEVELOPMENT ①/(①+②)
		①CASE OF DEVELOPMENT INTO "REACH" (I) "BB HIT + CLAPPING REACH" (II) "BB HIT + HARITE REACH" (III) "BB HIT + ALL ROTATION REACH" (IV) "LOSS + CLAPPING REACH" (V) "LOSS + HARITE REACH"		
FACE PROGNOSTIC 2	A	4055/1433600	0	100%
	B	12380/1433600	0	100%
	C	7400/1433600	66810/1433600	10%
	D	1380/1433600	66810/1433600	2%
	A	11195/1433600	33405/1433600	25%
	B	6225/1433600	0	100%
FACE PROGNOSTIC 1	C	1405/1433600	66810/1433600	2%
	D	3185/1433600	66810/1433600	5%
	A	780/1433600	33405/1433600	2%
	B	8425/1433600	33405/1433600	20%
	C	19715/1433600	100215/1433600	16%
	D	3355/1433600	66810/1433600	5%
D	A	3355/1433600	33405/1433600	9%
	B	5395/1433600	233835/1433600	2%
	C	3930/1433600	100215/1433600	4%
	D	5230/1433600	434265/1433600	1%

FIG. 42



F I G. 4 3



F I G. 44

(I) "BB HIT + CLAPPING REACH"

FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	RANDOM NUMBER FOR DETERMINATION OF FACE PROGNOSTIC COMBINATION
A	A	0
		1
		2
		3
		4
		5
		6
		7
		8
		9
		10
B	B	11
		12
	C	13
		14
		15
		16
		17
B	A	18
		19
	B	20
		21
		22
		23
		24
		25
		26
C	C	27
		28
		29
	D	30
		31
	A	32
		33
		34
		35
D	B	36
	C	37
	D	38
		39

F I G. 45

(II) "BB HIT + HARITE REACH"

FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	RANDOM NUMBER FOR DETERMINATION OF FACE PROGNOSTIC COMBINATION
A	A	0
		1
	B	2
		3
		4
	C	5
		6
		7
		8
	D	9
		10
	B	11
		12
		13
		14
		15
		16
		17
		18
	C	19
		20
C	D	21
		22
	A	23
		24
	B	25
		26
		27
		28
		29
		30
	C	31
		32
D	D	33
		34
	A	35
		36
	B	37
		38
	C	39

FIG. 46

(III) "BB HIT + ALL ROTATION REACH"

FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	RANDOM NUMBER FOR DETERMINATION OF FACE PROGNOSTIC COMBINATION
A	A	0
		1
		2
		3
		4
		5
		6
		7
		8
		9
		10
		11
		12
		13
		14
B	B	15
		16
		17
B	D	18
	A	19
C	A	20
		21
		22
		23
		24
		25
		26
		27
		28
		29
		30
		31
		32
		33
		34
		35
		36
		37
		38
		39

F I G. 4 7

(IV) "NO BB HIT + CLAPPING REACH"

FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	RANDOM NUMBER FOR DETERMINATION OF FACE PROGNOSTIC COMBINATION
A	A	0
		1
	B	2
		3
		4
	C	5
		6
		7
		8
	D	9
B	A	10
		11
	B	12
		13
		14
		15
C	C	16
	B	17
		18
		19
	C	20
		21
		22
		23
		24
		25
D	D	26
		27
		28
	A	29
		30
		31
		32
	B	33
		34
		35
		36
	C	37
		38
		39

F I G. 4 8

(V) "NO BB HIT + HARITE REACH"

FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	RANDOM NUMBER FOR DETERMINATION OF FACE PROGNOSTIC COMBINATION
A	B	0
		1
		2
		3
		4
		5
		6
		7
	C	8
		9
B	A	10
		11
		12
		13
		14
		15
		16
		17
	D	18
		19
		20
C	B	21
		22
		23
	C	24
		25
		26
D	D	27
		28
	A	29
		30
	B	31
		32
		33
		34
	D	35
		36
		37
		38
		39

F I G. 4 9

(VI) "NO BB HIT + NO REACH"

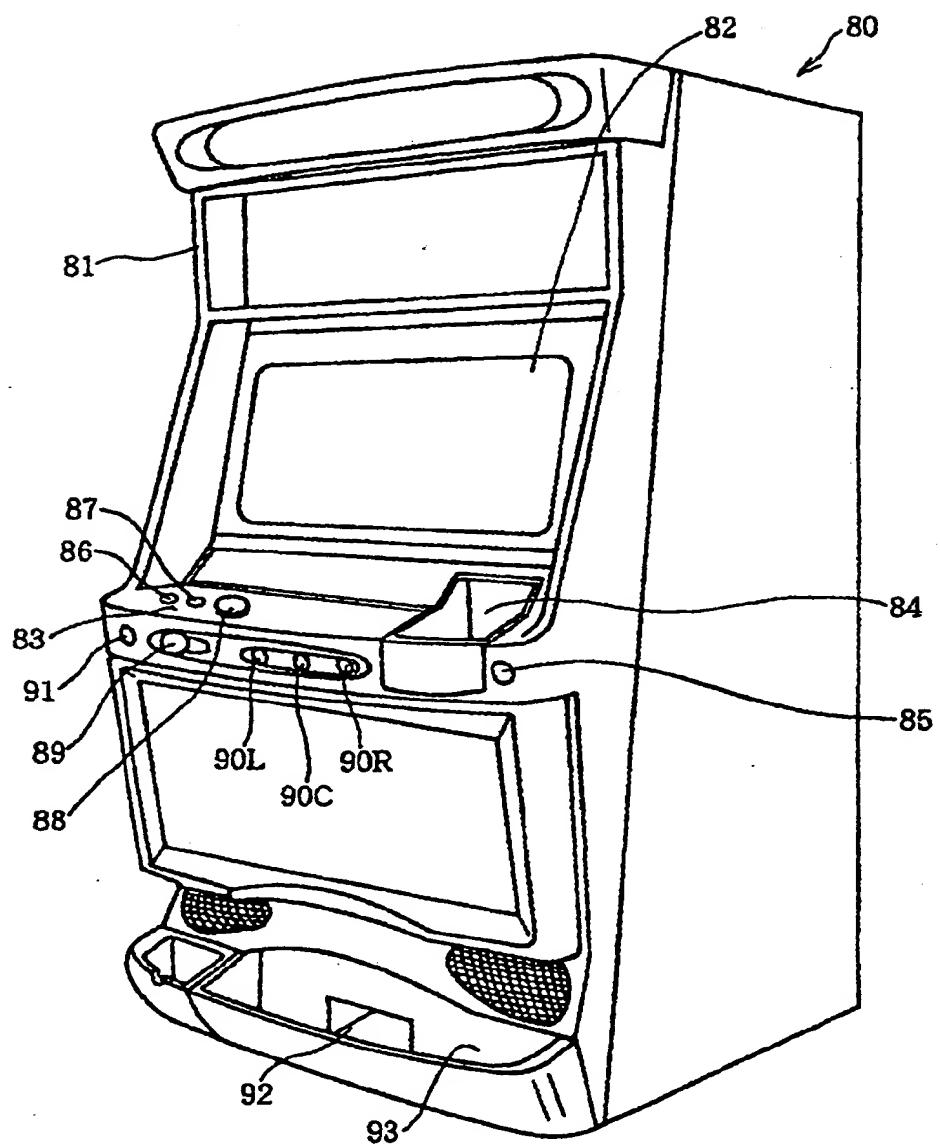
FACE PROGNOSTIC 1	FACE PROGNOSTIC 2	RANDOM NUMBER FOR DETERMINATION OF FACE PROGNOSTIC COMBINATION
A	C	0
		1
	D	2
		3
B	A	4
		5
	C	6
		7
		8
C	A	9
		10
	C	11
		12
		13
	D	14
		15
D	A	16
		17
	B	18
		19
		20
		21
	C	22
		23
		24
	D	25
		26
		27
		28
		29
		30
		31
		32
		33
		34
		35
		36
		37
		38
		39

F I G. 5 0

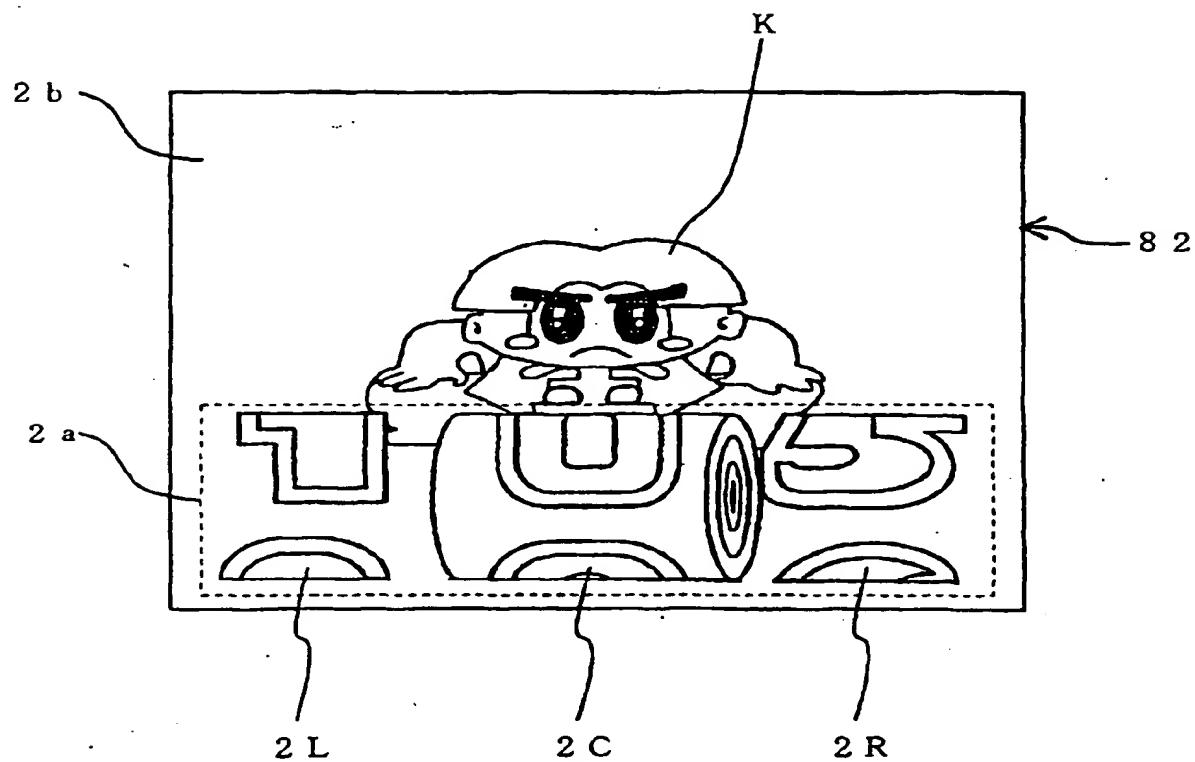
FACE SYMBOL DETERMINATION TABLE

PROGNOSTIC GROUP	RANDOM NUMBER FOR DETERMINATION OF PROGNOSTIC DISPLAY COMBINATION	
	CASE OF EVEN RANDOM NUMBER	CASE OF ODD RANDOM NUMBER
A GROUP	FACE SYMBOL 1 	FACE SYMBOL 2 
B GROUP	FACE SYMBOL 3 	FACE SYMBOL 4 
C GROUP	FACE SYMBOL 5 	FACE SYMBOL 6 
D GROUP	FACE SYMBOL 7 	FACE SYMBOL 8 

F I G. 5 1

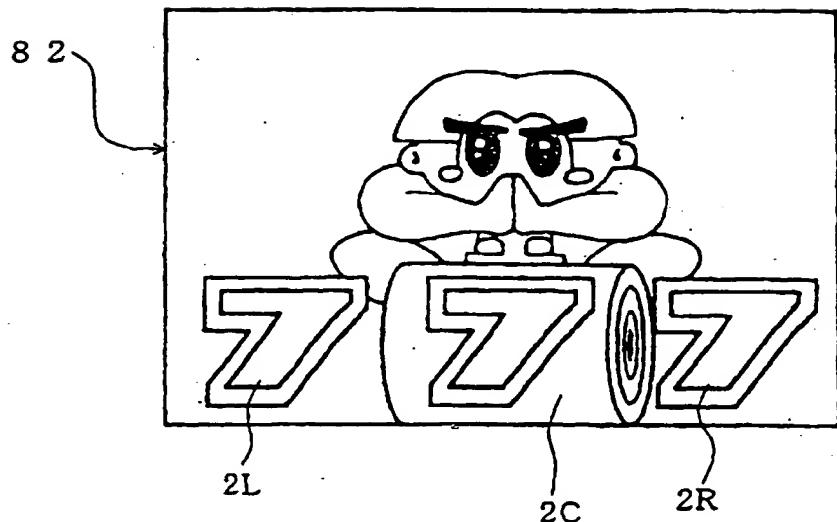


F I G. 5 2



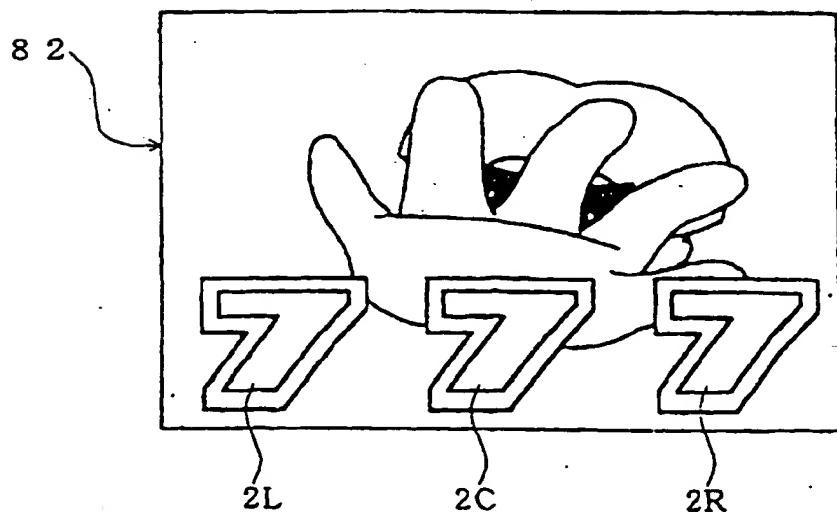
F I G . 5 3

"CLAPPING REACH"



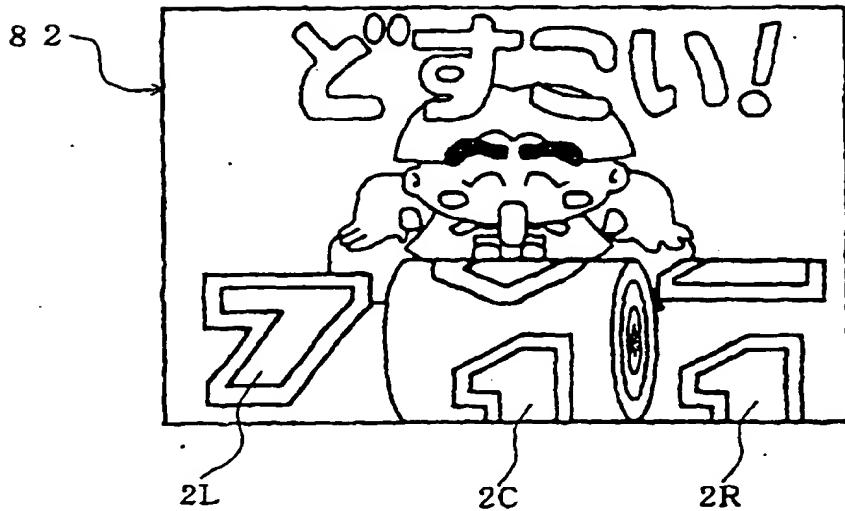
F I G . 5 4

"HARITE REACH"



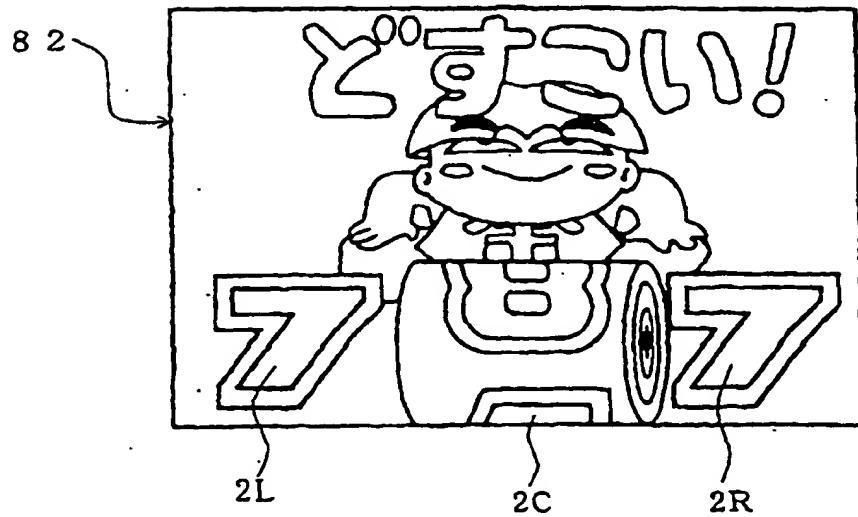
F I G. 5 5

FACE PROGNOSTIC 1.



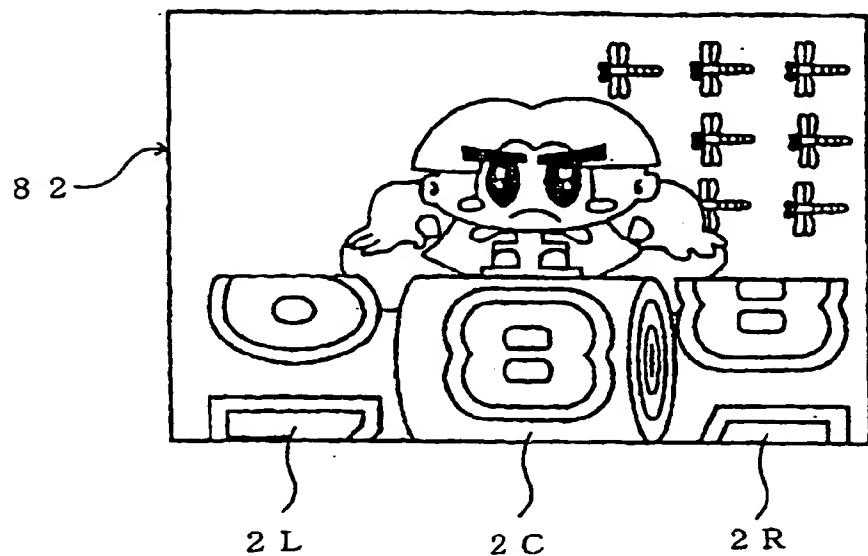
F I G. 5 6

FACE PROGNOSTIC 2



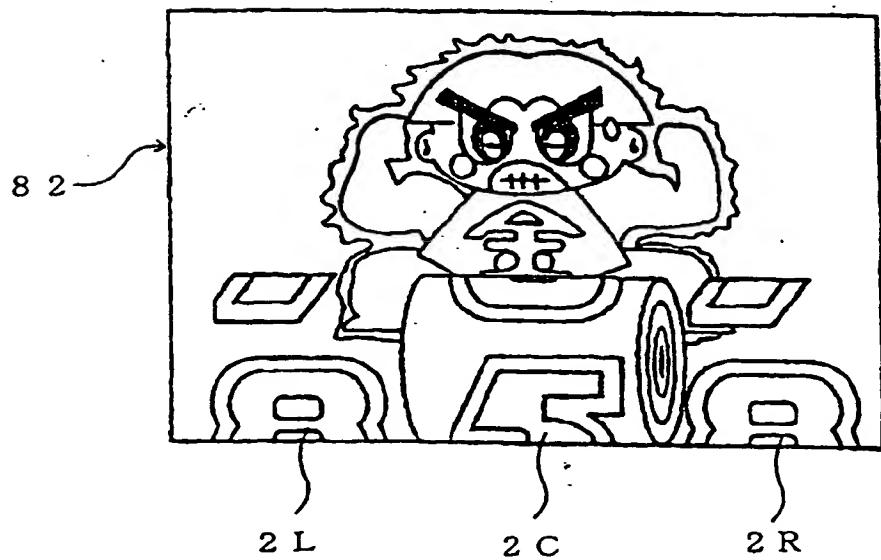
F I G . 5 7

DRAGONFLY PROGNOSTIC



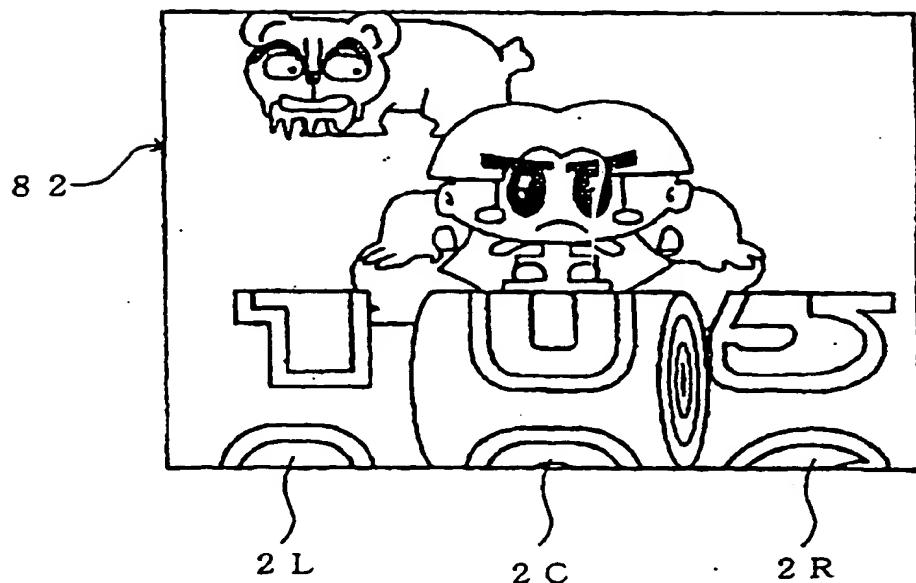
F I G . 5 8

FIGHTING PROGNOSTIC



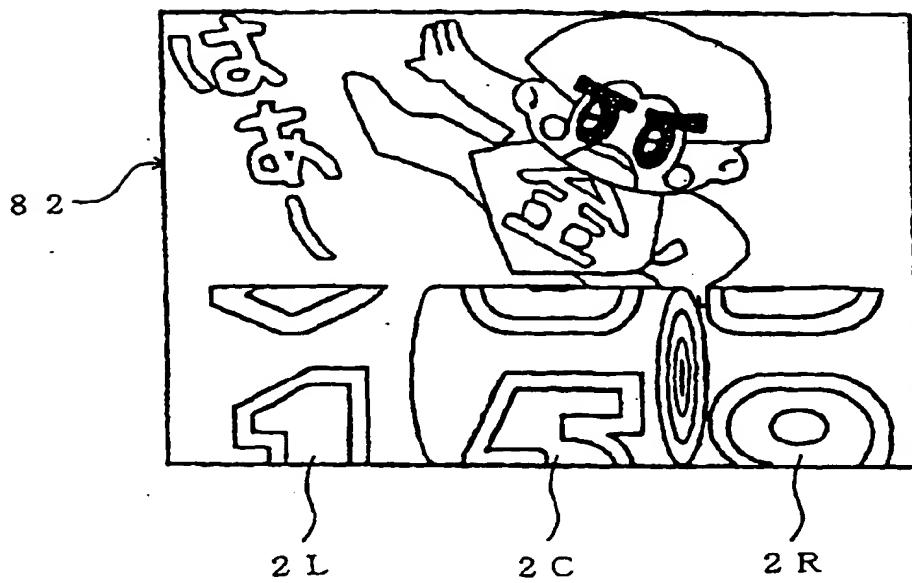
F I G. 5 9

BEAR PROGNOSTIC

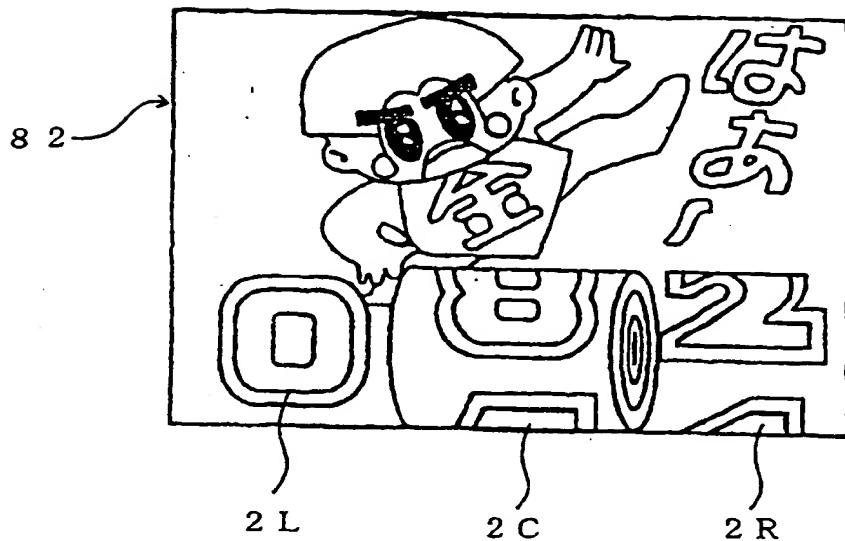


F I G. 6 0

RIGHT LEG LIFTING PROGNOSTIC



F I G. 6 1
LEFT LEG LIFTING PROGNOSTIC



F I G. 6 2
SMALL DEGREE LEG LIFTING

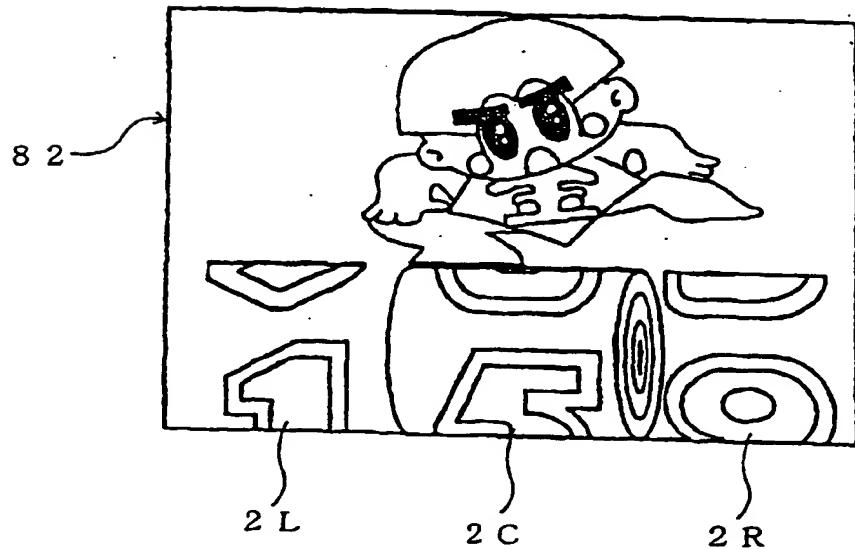


FIG. 63

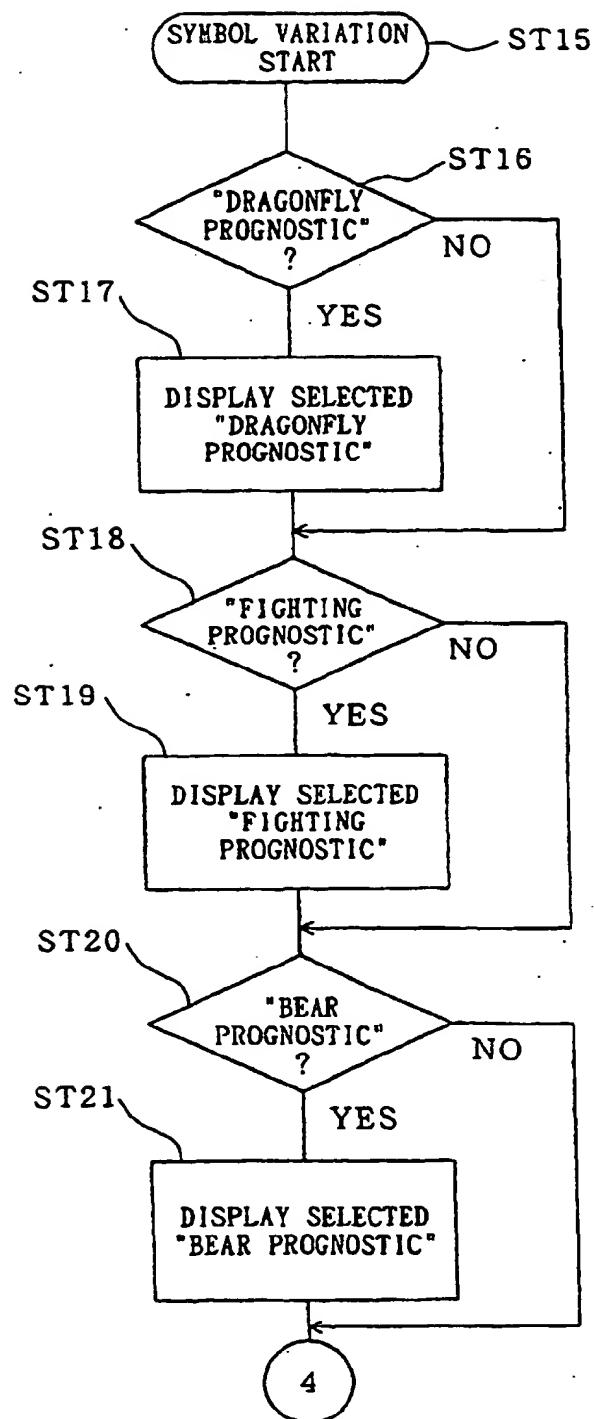
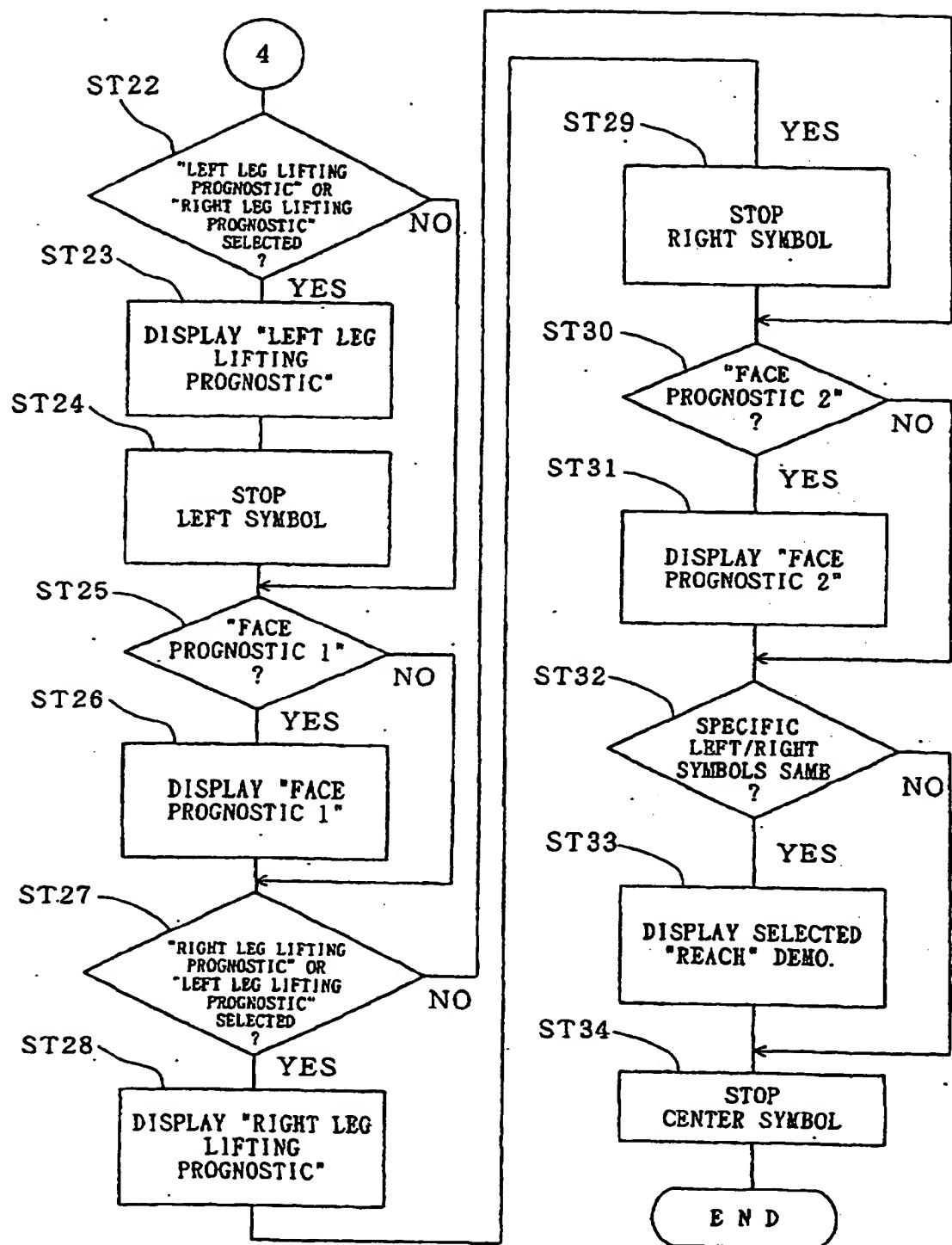


FIG. 64





(19)

Europäisches Patentamt

European Patent Office

Office européen des brevets

(12)

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(51) Int Cl. 7: G07F 17/32

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(54) Gaming machine

(57) A gaming machine (60) has a symbol display arrangement (63L, 63C, 63R) for variably displaying a plurality of symbols that is arranged to display a stop state when variation of the displayed symbols is stopped and to give a profit to a player when the stop state corresponds to a specific stop state; a predictive display arrangement (64) for performing predictive display whether the specific stop state is or is not be displayed when variation of the displayed symbols is stopped; a start device (70) for starting the variation of the displayed symbols in response to manipulation by a player; a stop device (71L, 71C, 71R) for stopping the variation of the displayed symbols in response to manipulation by a player; and a controller (201) for determining whether or not it is permitted to display of the specific stop state and for determining a predictive display mode based on the result of the determination, the controller (201) being arranged to control the predictive display arrangement (64) such that a likelihood of appearance of the specific stop state is changeable in conjunction with a change in the game resulting from the passage of time. Since a likelihood or a reliability of an appearance of the specific stop state is changeable with passage of time, the player can adjust his or her stop manipulation while confirming changes of the predictive display or expecting appearance of a known predictive display at the time of the player's manipulation. In addition, since the predictive display is performed by using symbols, the player can recognize information of the prediction precisely and an effective demonstration can variously be realized, there-

by the firm of the entire game is enhanced.

FIG. 2

FACE PROGNOSTIC DETERMINATION TABLE
("BB HIT + CLAPPING REACH")

PROGNOSTIC GROUP	RANDOM NUMBER FOR PROGNOSTIC DISPLAY DETERMINATION	
	0~40	41~80
A GROUP	FACE SYMBOL 1	FACE SYMBOL 2
B GROUP	81~96	97~110
	FACE SYMBOL 3	FACE SYMBOL 4
C GROUP	111~115	116~119
	FACE SYMBOL 5	FACE SYMBOL 6
D GROUP	120~129	130~139
	FACE SYMBOL 7	FACE SYMBOL 8



EUROPEAN SEARCH REPORT

Application Number
EP 99 30 9595

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)
X	EP 0 875 870 A (UNIVERSAL SALES CO LTD) 4 November 1998 (1998-11-04) * column 2, line 49 - column 4, line 5 * * column 14, line 1 - column 15, line 23 * * column 18, line 6 - line 28 * * abstract; figures 1,8-27 * ---	1-15	G07F17/32
P,X	EP 0 921 504 A (ARUZE CORP) 9 June 1999 (1999-06-09) * paragraph '0035! - paragraph '0037! * * paragraph '0218! - paragraph '0236! * * abstract; figures 2,65-72 *	1-15	
X	EP 0 414 427 A (UNIVERSAL KK) 27 February 1991 (1991-02-27) * abstract; claims 1-3; figure 1 *	1,15	
A	US 5 630 753 A (FUCHS ANTON) 20 May 1997 (1997-05-20) * column 5, line 49 - column 6, line 36; figures *	1-3,14, 15	
TECHNICAL FIELDS SEARCHED (Int.CI.7)			
G07F			
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
THE HAGUE	4 June 2002	Reule, D	
CATEGORY OF CITED DOCUMENTS			
<input checked="" type="checkbox"/> X : particularly relevant if taken alone <input checked="" type="checkbox"/> Y : particularly relevant if combined with another document of the same category <input type="checkbox"/> A : technological background <input type="checkbox"/> O : non-written disclosure <input type="checkbox"/> P : intermediate document		<input type="checkbox"/> T : theory or principle underlying the invention <input type="checkbox"/> E : earlier patent document, but published on, or after the filing date <input type="checkbox"/> D : document cited in the application <input type="checkbox"/> L : document cited for other reasons <input type="checkbox"/> & : member of the same patent family, corresponding document	

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 99 30 9595

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

04-06-2002

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 0875870	A	04-11-1998	JP	11009761 A	19-01-1999
			AU	743079 B2	17-01-2002
			AU	6371698 A	05-11-1998
			EP	0875870 A2	04-11-1998
			US	6287194 B1	11-09-2001
			ZA	9803671 A	17-11-1998
EP 0921504	A	09-06-1999	AU	9609898 A	24-06-1999
			EP	0921504 A2	09-06-1999
			JP	3069092 B2	24-07-2000
			JP	2000135303 A	16-05-2000
			JP	2000135304 A	16-05-2000
			JP	3056742 B2	26-06-2000
			JP	2000135305 A	16-05-2000
			JP	2000135306 A	16-05-2000
			JP	2001259119 A	25-09-2001
			JP	2001259118 A	25-09-2001
			JP	2001286601 A	16-10-2001
			US	6306034 B1	23-10-2001
			ZA	9811116 A	04-06-1999
EP 0414427	A	27-02-1991	JP	2634465 B2	23-07-1997
			JP	3077569 A	03-04-1991
			AT	129085 T	15-10-1995
			AU	634805 B2	04-03-1993
			AU	6094290 A	21-02-1991
			DE	69022928 D1	16-11-1995
			DE	69022928 T2	21-03-1996
			EP	0414427 A2	27-02-1991
			US	5024439 A	18-06-1991
US 5630753	A	20-05-1997	AT	141092 A	15-05-1997
			WO	9401840 A1	20-01-1994
			AT	133280 T	15-02-1996
			AU	685748 B2	29-01-1998
			AU	4412593 A	31-01-1994
			CZ	9500018 A3	17-05-1995
			DE	59301483 D1	29-02-1996
			EP	0648361 A1	19-04-1995
			NO	950064 A	28-02-1995
			PL	172564 B1	31-10-1997
			SK	1095 A3	11-07-1995
			US	6126541 A	03-10-2000

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